

SEQUENCE LISTING

- <110> Bhatia, Ajay
Skeiky, Yasir A.W.
Probst, Peter
- <120> COMPOSITIONS AND METHODS FOR TREATMENT AND
DIAGNOSIS OF CHLAMYDIAL INFECTION
- <130> 210121.469C8
- <140> US
- <141> 2001-04-23
- <160> 599
- <170> FastSEQ for Windows Version 3.0/4.0

- <210> 1
<211> 481
<212> DNA
<213> Chlamydia trachomatis

<400> 1
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gcgaaggaag agccctcaac ttttcttata accttcttta actaggagtc atccatgagt 120
caaaataaga actctgcttt catgcagcct gtgaacgtat ccgctgattt agctgccatc 180
gttggtgcag gacctatgcc tcgcacagag atcattaaga aaatgtggga ttacattaag 240
gagaatagtc ttcaagatcc tacaacaaa cgtaatatca atcccgatga taaattggct 300
aaagtttttg gaactgaaaa acctatcgat atgttccaaa tgacaaaaat ggtttctcaa 360
cacatcatta aataaaatag aaattgactc acgtgttcc tctctttaag atgaggaact 420
agttcattct ttttgttcgt ttttgtgggt attactgtat ctttaacaac tatcttagca 480
g 481

- <210> 2
<211> 183
<212> DNA
<213> Chlamydia trachomatis

<400> 2
atcggttggtg caggacctat gcctcgaca gagatcatta agaaaatgtg ggattacatt 60
aaggagaata gtcttcaaga tcctacaaac aaacgtaata tcaatcccga tgataaattg 120
gctaaagttt ttggaactga aaaacctatc gatatgttcc aaatgacaaa aatggtttct 180
caa 183

- <210> 3
<211> 110
<212> DNA
<213> Chlamydia trachomatis

<400> 3
gctgcgacat catgcgagct tgcaaaccac catggacatc tccaatttcc ctttctaact 60
cgctcttttg aactaatgct gctaccgagt caatcacaat cacatcgacc 110

- <210> 4
<211> 555

<213> Chlamydia trachomatis

| | | | | | | |
|------------|------------|------------|-------------|------------|------------|-----|
| cggcacgagc | ctaagatgct | tatactactt | taagggaggc | ccttcgtatg | cgcgcgatca | 60 |
| ttggaataga | tattcctgcg | aaaaagaaat | taaaaataag | tcttacatat | atztatggaa | 120 |
| tagggccagc | tctttctaaa | gagattattg | ctagattgca | gttgaatccc | gaagctagag | 180 |
| ctgcagagtt | gactgaggaa | gaggttggtc | gactaaacgc | tcttttacag | tcggattacg | 240 |
| ttgttgaagg | ggatttgcg | cgtcgtgtgc | aatctgatat | caaacgtctg | attactatcc | 300 |
| atgcttatcg | tggacaaaga | catagacttt | c ttgacctgt | tcgtggtcag | agaacaaaaa | 360 |
| caaattctcg | cacgcgtaag | ggtaaacgta | aaactattgc | aggtagaaga | aaataataat | 420 |
| ttttaggaga | gagtgttttg | gttaaaaatc | aagcgcaaaa | aagaggcgta | aaaagaaaac | 480 |
| aagtaaaaaa | cattccttcg | ggcgttgctc | atgttaaggc | tacttttaat | aatacaattg | 540 |
| taaccataac | agacc | | | | | 555 |

<213> Chlamydia trachomatis

[illegible]

<213> Chlamydia trachomatis

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Val | Gly | Ala | Gly | Pro | Met | Pro | Arg | Thr | Glu | Ile | Ile | Lys | Lys | Met |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Trp | Asp | Tyr | Ile | Lys | Glu | Asn | Ser | Leu | Gln | Asp | Pro | Thr | Asn | Lys | Arg |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Asn | Ile | Asn | Pro | Asp | Asp | Lys | Leu | Ala | Lys | Val | Phe | Gly | Thr | Glu | Lys |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Pro | Ile | Asp | Met | Phe | Gln | Met | Thr | Lys | Met | Val | Ser | Gln | | | |
| | 50 | | | | | 55 | | | | | 60 | | | | |

<213> Chlamyida trachomatis

Ala Ala Thr Ser Cys Glu Leu Ala Asn Gln His Gly His Leu Gln Phe
1 5 10 15

Pro Leu Leu Thr Arg Ser Leu Glu Leu Met Leu Leu Pro Ser Gln Ser
 20 25 30
 Gln Ser His Arg
 35

<210> 8
 <211> 18
 <212> PRT
 <213> Chlamydia trachomatis

<400> 8
 Leu Arg His His Ala Ser Leu Gln Thr Asn Met Asp Ile Ser Asn Phe
 1 5 10 15
 Pro Phe

<210> 9
 <211> 5
 <212> PRT
 <213> Chlamydia trachomatis

<400> 9
 Leu Ala Leu Trp Asn
 1 5

<210> 10
 <211> 11
 <212> PRT
 <213> Chlamydia trachomatis

<400> 10
 Cys Cys Tyr Arg Val Asn His Asn His Ile Asp
 1 5 10

<210> 11
 <211> 36
 <212> PRT
 <213> Chlamydia trachomatis

<400> 11
 Val Asp Val Ile Val Ile Asp Ser Val Ala Ala Leu Val Pro Lys Ser
 1 5 10 15
 Glu Leu Glu Gly Glu Ile Gly Asp Val His Val Gly Leu Gln Ala Arg
 20 25 30
 Met Met Ser Gln
 35

<210> 12
 <211> 122
 <212> PRT
 <213> Chlamydia trachomatis

<400> 12
 Met Pro Arg Ile Ile Gly Ile Asp Ile Pro Ala Lys Lys Lys Leu Lys
 1 5 10 15
 Ile Ser Leu Thr Tyr Ile Tyr Gly Ile Gly Pro Ala Leu Ser Lys Glu
 20 25 30

090411-04301

Ile Ile Ala Arg Leu Gln Leu Asn Pro Glu Ala Arg Ala Ala Glu Leu
 35 40 45
 Thr Glu Glu Glu Val Gly Arg Leu Asn Ala Leu Leu Gln Ser Asp Tyr
 50 55 60
 Val Val Glu Gly Asp Leu Arg Arg Arg Val Gln Ser Asp Ile Lys Arg
 65 70 75 80
 Leu Ile Thr Ile His Ala Tyr Arg Gly Gln Arg His Arg Leu Ser Leu
 85 90 95
 Pro Val Arg Gly Gln Arg Thr Lys Thr Asn Ser Arg Thr Arg Lys Gly
 100 105 110
 Lys Arg Lys Thr Ile Ala Gly Lys Lys Lys
 115 120

<210> 13
 <211> 20
 <212> PRT
 <213> Chlamydia trachomatis

<400> 13
 Asp Pro Thr Asn Lys Arg Asn Ile Asn Pro Asp Asp Lys Leu Ala Lys
 1 5 10 15
 Val Phe Gly Thr
 20

<210> 14
 <211> 20
 <212> PRT
 <213> Chlamydia trachomatis

<400> 14
 Asp Asp Lys Leu Ala Lys Val Phe Gly Thr Glu Lys Pro Ile Asp Met
 1 5 10 15
 Phe Gln Met Thr
 20

<210> 15
 <211> 161
 <212> DNA
 <213> Chlamydia trachomatis

<400> 15
 atctttgtgt gtctcataag cgcagagcgg ctgcggctgt ctgtagcttc atcggaggaa 60
 ttacctacct cgcgacattc ggagctatcc gtccgattct gtttgtcaac aaaatgctgg 120
 cgcaaccgtt tctttcttcc caaactaaag caaatatggg a 161

<210> 16
 <211> 897
 <212> DNA
 <213> Chlamydia trachomatis

<400> 16
 atggcttcta tatgcggacg tttaggggtct ggtacaggga atgctctaaa agcttttttt 60
 acacagccca acaataaaat ggcaagggtg gtaaataaga cgaagggaat ggataagact 120
 attaaggttg ccaagtctgc tgcggaattg accgcaaata ttttggaaca agctggaggc 180
 gcgggctctt ccgcacacat tacagcttcc caagtgtcca aaggattagg ggatgcgaga 240
 actgttgtcg ctttagggaa tgcctttaac ggagcgttgc caggaacagt tcaaagtgcg 300
 caaagcttct tctctcatat gaaagctgct agtcagaaaa cgcaagaagg ggatgagggg 360


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ctcacagcag atctttgtgt gtctcataag cgcagagcgg ctgcggctgt ctgtagcatc 420
atcggaggaa ttacctacct cgcgacattc ggagctatcc gtccgattct gtttgtcaac 480
aaaatgctgg caaaaccgtt tctttcttcc caaactaaag caaatatggg atcttctgtt 540
agctatatta tggcggctaa ccattgcagcg tctgtggtgg gtgctggact cgctatcagt 600
gcggaagag cagattgcga agcccgtgc gctcgtattg cgagagaaga gtcgttactc 660
gaagtgccgg gagaggaaaa tgcttgcgag aagaaagtcg ctggagagaa agccaagacg 720
ttcacgcgca tcaagtatgc actcctcact atgctcgaga agtttttgga atgcgttgcc 780
gacgttttca aattggtgcc gctgcctatt acaatgggta ttcgtgcgat tgtggctgct 840
ggatgtacgt tcacttctgc aattattgga ttgtgcactt tctgcgccag agcataa 897

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<210> 17

<211> 298

<212> PRT

<213> Chlamydia trachomatis

<400> 17

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Met Ala Ser Ile Cys Gly Arg Leu Gly Ser Gly Thr Gly Asn Ala Leu
1      5      10      15
Lys Ala Phe Phe Thr Gln Pro Asn Asn Lys Met Ala Arg Val Val Asn
20     25     30
Lys Thr Lys Gly Met Asp Lys Thr Ile Lys Val Ala Lys Ser Ala Ala
35     40     45
Glu Leu Thr Ala Asn Ile Leu Glu Gln Ala Gly Gly Ala Gly Ser Ser
50     55     60
Ala His Ile Thr Ala Ser Gln Val Ser Lys Gly Leu Gly Asp Ala Arg
65     70     75     80
Thr Val Val Ala Leu Gly Asn Ala Phe Asn Gly Ala Leu Pro Gly Thr
85     90     95
Val Gln Ser Ala Gln Ser Phe Phe Ser His Met Lys Ala Ala Ser Gln
100    105    110
Lys Thr Gln Glu Gly Asp Glu Gly Leu Thr Ala Asp Leu Cys Val Ser
115    120    125
His Lys Arg Arg Ala Ala Ala Val Cys Ser Ile Ile Gly Gly Ile
130    135    140
Thr Tyr Leu Ala Thr Phe Gly Ala Ile Arg Pro Ile Leu Phe Val Asn
145    150    155    160
Lys Met Leu Ala Lys Pro Phe Leu Ser Ser Gln Thr Lys Ala Asn Met
165    170    175
Gly Ser Ser Val Ser Tyr Ile Met Ala Ala Asn His Ala Ala Ser Val
180    185    190
Val Gly Ala Gly Leu Ala Ile Ser Ala Glu Arg Ala Asp Cys Glu Ala
195    200    205
Arg Cys Ala Arg Ile Ala Arg Glu Glu Ser Leu Leu Glu Val Pro Gly
210    215    220
Glu Glu Asn Ala Cys Glu Lys Lys Val Ala Gly Glu Lys Ala Lys Thr
225    230    235    240
Phe Thr Arg Ile Lys Tyr Ala Leu Leu Thr Met Leu Glu Lys Phe Leu
245    250    255
Glu Cys Val Ala Asp Val Phe Lys Leu Val Pro Leu Pro Ile Thr Met
260    265    270
Gly Ile Arg Ala Ile Val Ala Ala Gly Cys Thr Phe Thr Ser Ala Ile
275    280    285
Ile Gly Leu Cys Thr Phe Cys Ala Arg Ala
290    295

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<210> 18

<211> 18

<212> PRT

<213> Chlamydia trachomatis

<400> 18

Arg Ala Ala Ala Ala Ala Val Cys Ser Phe Ile Gly Gly Ile Thr
 1 5 10 15
 Tyr Leu

<210> 19

<211> 18

<212> PRT

<213> Chlamydia trachomatis

<400> 19

Cys Ser Phe Ile Gly Gly Ile Thr Tyr Leu Ala Thr Phe Gly Ala Ile
 1 5 10 15
 Arg Pro

<210> 20

<211> 216

<212> PRT

<213> Chlamydia trachomatis

<400> 20

Met Arg Gly Ser Gln Gln Ile Phe Val Cys Leu Ile Ser Ala Glu Arg
 1 5 10 15
 Leu Arg Leu Ser Val Ala Ser Ser Glu Glu Leu Pro Thr Ser Arg His
 20 25 30
 Ser Glu Leu Ser Val Arg Phe Cys Leu Ser Thr Lys Cys Trp Gln Asn
 35 40 45
 Arg Phe Phe Leu Pro Lys Leu Lys Gln Ile Trp Asp Leu Leu Leu Ala
 50 55 60
 Ile Leu Trp Arg Leu Thr Met Gln Arg Leu Trp Trp Val Leu Asp Ser
 65 70 75 80
 Leu Ser Val Arg Lys Glu Gln Ile Ala Lys Pro Ala Ala Leu Val Leu
 85 90 95
 Arg Glu Lys Ser Arg Tyr Ser Lys Cys Arg Glu Arg Lys Met Leu Ala
 100 105 110
 Arg Arg Lys Ser Leu Glu Arg Lys Pro Arg Arg Ser Arg Ala Ser Ser
 115 120 125
 Met His Ser Ser Leu Cys Ser Arg Ser Phe Trp Asn Ala Leu Pro Thr
 130 135 140
 Phe Ser Asn Trp Cys Arg Cys Leu Leu Gln Trp Val Phe Val Arg Leu
 145 150 155 160
 Trp Leu Leu Asp Val Arg Ser Leu Leu Gln Leu Leu Asp Cys Ala Leu
 165 170 175
 Ser Ala Pro Glu His Lys Gly Phe Phe Lys Phe Leu Lys Lys Lys Ala
 180 185 190
 Val Ser Lys Lys Lys Gln Pro Phe Leu Ser Thr Lys Cys Leu Ala Phe
 195 200 205
 Leu Ile Val Lys Ile Val Phe Leu
 210 215

<210> 21

<211> 1256

T000240" 22F4860

<212> DNA

<213> Chlamydia trachomatis

<400> 21

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| ctcgtgccgg | cacgagcaaa | gaaatccctc | aaaaaatggc | cattattggc | ggtggtgtga | 60 |
| tcggttgcca | attcgcttcc | ttattccata | cgtaggctc | cgaagtttct | gtgatcgaag | 120 |
| caagctctca | aatccttgct | ttgaataatc | cagatatttc | aaaaaccatg | ttcgataaat | 180 |
| tcacccgaca | aggactccgt | ttcgtactag | aagcctctgt | atcaaataat | gaggatatag | 240 |
| gagatcgct | tcggttaact | atcaatggga | atgtcgaaga | atacgattac | gttctcgtat | 300 |
| ctataggacg | ccgtttgaat | acagaaaata | ttggcttgga | taaagctggg | gttatttggtg | 360 |
| atgaacgcgg | agtcacccct | accgatgcc | caatgcgcac | aaacgtacct | aacatttatg | 420 |
| ctattggaga | tatcacagga | aaatggcaac | ttgccatgt | agcttctcat | caaggaatca | 480 |
| ttgcagcacg | gaatataggt | ggccataaag | aggaaatcga | ttactctgct | gtcccttctg | 540 |
| tgatctttac | cttccctgaa | gtcgcttcag | taggcctctc | cccaacagca | gctcaacaac | 600 |
| atctccttct | tcgcttactt | tttctgaaaa | atttgataca | gaagaagaat | tcctcgcaca | 660 |
| cttgcgagga | ggagggcgct | tgggaagacca | gttgaattta | gctaagtttt | ctgagcggtt | 720 |
| tgattctttg | cgagaattat | ccgctaagct | tggttacgat | agcgatggag | agactgggga | 780 |
| tttcttcaac | gaggagtacg | acgacgaaga | agaggaaatc | aaaccgaaga | aaactacgaa | 840 |
| acgtggacgt | aagaagagcc | gttcataaag | cttgctttta | agggtttggta | gttttacttc | 900 |
| tctaaaatcc | aaatggttgc | tgtgccaaaa | agtagtttgc | gtttccggat | agggcgtaaa | 960 |
| tgcgctgcat | gaaagattgc | ttcgagagcg | gcacgcgctg | ggagatcccg | gatactttct | 1020 |
| ttcagatacg | aataagcata | gctgttccca | gaataaaaac | ggccgacgct | aggaacaaca | 1080 |
| agatttagat | agagcttggt | tagcaggtaa | actgggttat | atggttgctgg | gcgtgttagt | 1140 |
| tctagaatac | ccaagtgtcc | tccaggttgt | aatactcgat | acacttccct | aagagcctct | 1200 |
| aatggatagg | ataagttccg | taatccatag | gccatagaag | ctaaacgaaa | cgtatt | 1256 |

<210> 22

<211> 601

<212> DNA

<213> Chlamydia trachomatis

<400> 22

| | | | | | | |
|------------|------------|------------|------------|------------|-------------|-----|
| ctcgtgccgg | cacgagcaaa | gaaatccctc | aaaaaatggc | cattattggc | ggtggtgtga | 60 |
| tcggttgcca | attcgcttcc | ttattccata | cgtaggctc | cgaagtttct | gtgatcgaag | 120 |
| caagctctca | aatccttgct | ttgaataatc | cagatatttc | aaaaaccatg | ttcgataaat | 180 |
| tcacccgaca | aggactccgt | ttcgtactag | aagcctctgt | atcaaataat | gaggatatag | 240 |
| gagatcgct | tcggttaact | atcaatggga | atgtcgaaga | atacgattac | gttctcgtat | 300 |
| ctataggacg | ccgtttgaat | acagaaaata | ttggcttgga | taaagctggg | gttatttggtg | 360 |
| atgaacgcgg | agtcacccct | accgatgcc | caatgcgcac | aaacgtacct | aacatttatg | 420 |
| ctattggaga | tatcacagga | aaatggcaac | ttgccatgt | agcttctcat | caaggaatca | 480 |
| ttgcagcacg | gaatataggt | ggccataaag | aggaaatcga | ttactctgct | gtcccttctg | 540 |
| tgatctttac | cttccctgaa | gtcgcttcag | taggcctctc | cccaacagca | gctcaacaac | 600 |
| a | | | | | | 601 |

<210> 23

<211> 270

<212> DNA

<213> Chlamydia trachomatis

<400> 23

| | | | | | | |
|------------|------------|------------|------------|------------|------------|-----|
| acatctcctt | cttcgcttac | ttttcttgaa | aaatttgata | cagaagaaga | attcctcgca | 60 |
| cacttgcgag | gaggagggcg | tctggaagac | cagttgaatt | tagctaagtt | ttctgagcgt | 120 |
| tttgattctt | tgcgagaatt | atccgctaag | cttggttacg | atagcgatgg | agagactggg | 180 |
| gatttcttca | acgaggagta | cgacgacgaa | gaagaggaaa | tcaaaccgaa | gaaaactacg | 240 |
| aaacgtggac | gtaagaagag | ccgttcataa | | | | 270 |

<210> 24

<400> 24

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<210> 25
<211> 696
<212> DNA
<213> Chlamydia trachomatis
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<400> 25

```
<210> 26
<211> 231
<212> PRT
<213> Chlamydia trachomatis
```

<400> 26

| | | | | | | | | | | | | | | | |
|-----------|------------|------------|------------|-----------|-----|------------|------------|-----------|-----------|-----|------------|------------|------------|-----------|-----|
| Ala 1 | Arg | Ala | Gly | Thr 5 | Ser | Lys | Glu | Ile | Pro 10 | Gln | Lys | Met | Ala | Ile 15 | Ile |
| Gly | Gly | Gly | Val 20 | Ile | Gly | Cys | Glu | Phe 25 | Ala | Ser | Leu | Phe 30 | His | Thr | Leu |
| Gly | Ser | Glu | Val 35 | Ser | Val | Ile | Glu 40 | Ala | Ser | Ser | Gln | Ile 45 | Leu | Ala | Leu |
| Asn 50 | Asn | Pro | Asp | Ile | Ser | Lys 55 | Thr | Met | Phe | Asp | Lys 60 | Phe | Thr | Arg | Gln |
| Gly 65 | Leu | Arg | Phe | Val 70 | Leu | Glu | Ala | Ser | Val 75 | Ser | Asn | Ile | Glu | Asp | Ile |
| Gly | Asp | Arg | Val 85 | Arg | Leu | Thr | Ile | Asn 90 | Gly | Asn | Val | Glu | Glu | Tyr 95 | Asp |
| Tyr | Val | Leu | Val 100 | Ser | Ile | Gly | Arg 105 | Arg | Leu | Asn | Thr | Glu | Asn 110 | Ile | Gly |
| Leu | Asp | Lys 115 | Ala | Gly | Val | Ile | Cys 120 | Asp | Glu | Arg | Gly | Val 125 | Ile | Pro | Thr |
| Asp | Ala 130 | Thr | Met | Arg | Thr | Asn 135 | Val | Pro | Asn | Ile | Tyr 140 | Ala | Ile | Gly | Asp |
| Ile | Thr | Gly | Lys | Trp | Gln | Leu | Ala | His | Val | Ala | Ser | His | Gln | Gly | Ile |

145 150 155 160
 Ile Ala Ala Arg Asn Ile Gly Gly His Lys Glu Glu Ile Asp Tyr Ser
 165 170 175
 Ala Val Pro Ser Val Ile Phe Thr Phe Pro Glu Val Ala Ser Val Gly
 180 185 190
 Leu Ser Pro Thr Ala Ala Gln Gln His Leu Leu Leu Arg Leu Leu Phe
 195 200 205
 Leu Lys Asn Leu Ile Gln Lys Lys Asn Ser Ser His Thr Cys Glu Glu
 210 215 220
 Glu Gly Val Trp Lys Thr Ser
 225 230

<210> 27
 <211> 264
 <212> DNA
 <213> Chlamydia pneumoniae

<400> 27
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 gcagttatag ttggcaaggg acctatgccc agaaccgaaa ttgtaaagaa agtttgggaa 120
 tacattaaaa aacacaactg tcaggatcaa aaaaataaac gtaatatcct tcccgatgcg 180
 aatcttgcca aagtcttttg ctctagtgat cctatcgaca tgttccaaat gaccaaagcc 240
 ctttccaaac atattgtaaa ataa 264

<210> 28
 <211> 87
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 28
 Met Ser Gln Lys Asn Lys Asn Ser Ala Phe Met His Pro Val Asn Ile
 1 5 10 15
 Ser Thr Asp Leu Ala Val Ile Val Gly Lys Gly Pro Met Pro Arg Thr
 20 25 30
 Glu Ile Val Lys Lys Val Trp Glu Tyr Ile Lys Lys His Asn Cys Gln
 35 40 45
 Asp Gln Lys Asn Lys Arg Asn Ile Leu Pro Asp Ala Asn Leu Ala Lys
 50 55 60
 Val Phe Gly Ser Ser Asp Pro Ile Asp Met Phe Gln Met Thr Lys Ala
 65 70 75 80
 Leu Ser Lys His Ile Val Lys
 85

<210> 29
 <211> 369
 <212> DNA
 <213> Chlamydia pneumoniae

<400> 29
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 tatatttatg gaataggatc agctcgttct gatgaaatca ttaaaaagtt gaagttagat 120
 cctgaggcaa gagcctctga attaactgaa gaagaagtag gacgactgaa ctctctgcta 180
 caatcagaat ataccgtaga aggggatttg cgacgtcgtg ttcaatcgga tatcaaaaga 240
 ttgatcgcca tccattctta tcgaggtcag agacatagac tttctttacc agtaagagga 300
 caacgtacaa aaactaatte tcgtactcga aaaggtaaaa gaaaaacagt cgcaggtaag 360
 aagaaataa 369

60

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<210> 34
<211> 53
<212> PRT
<213> Chlamydia trachomatis
```

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<210> 35
<211> 55
<212> DNA
<213> Chlamydia pneumoniae
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<210> 36
<211> 33
<212> DNA
<213> Chlamydia pneumoniae
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```
<210> 37
<211> 53
<212> DNA
<213> Chlamydia pneumoniae
```

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<210> 38
<211> 30
<212> DNA
<213> Chlamydia pneumoniae
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<210> 39
<211> 16
<212> PRT
<213> Artificial Sequence
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<220>

<400> 39

<210> 40

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> made in the lab

<400> 40

<210> 41

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> made in the lab

<400> 41

<210> 42

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> made in the lab

<400> 42

<210> 43

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> made in the lab

<400> 43

[210] 44

<211> 509

<212> DNA

<213> Chlamydia

<400> 44

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ggagctcgaa ttcggcacga gagtgcctat tgttttgcag gctttgtctg atgatagcga 60
taccgtacgt gagattgctg tacaagtagc tgttatgtat ggttctagtt gcttactgcg 120
cgccgtgggc gatttagcga aaaatgattc ttctattcaa gtacgcatca ctgcttatcg 180
tgctgcagcc gtgttgaga tacaagatct tgtgcctcat ttacgagttg tagtccaaaa 240
tacacaatta gatggaacgg aaagaagaga agcttggaga tctttatgtg ttcttactcg 300
gcctcatagt ggtgtattaa ctggcataga tcaagcttta atgacctgtg agatgttaaa 360
ggaatatcct gaaaagtgtg cggaagaaca gattcgtaga ttattggctg cagatcatcc 420
agaagtgcag gtagctactt tacagatcat tctgagagga ggtagagtat tccgggtcatc 480
ttctataatg gaatcggttc tcgtgccgg 509

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<210> 45

<211> 481

<212> DNA

<213> Chlamydia

<220>

<221> unsure

<222> (23)

<223> n=A, T, C or G

<400> 45

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gatccgaatt cggcacgagg cantatttac tcccaacatt acggttccaa ataagcgata 60
aggtcttcta ataaggaagt taatgtaaga ggctttttta ttgcttttcg taaggtagta 120
ttgcaaccgc acgcgattga atgatacgca agccatttcc atcatggaaa agaacccttg 180
gacaaaaata caaaggaggt tcaactcctaa ccagaaaaag ggagagttag tttccatggg 240
ttttccttat atacaccctg ttacacacaa taggagcgc gtctagtatt tggaaatacaa 300
attgtcccca agcgaatttt gtccctgttt cagggatttc tctaattgt tctgtcagcc 360
atccgcctat ggtaacgcaa ttagctgtag taggaagatc aactccaaac aggtcataga 420
aatcagaaag ctcataggtg cctgcagcaa taacaacatt cttgtctgag tgagcgaatt 480
g 481

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<210> 46

<211> 427

<212> DNA

<213> Chlamydia

<220>

<221> unsure

<222> (20)

<223> n=A, T, C or G

<400> 46

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gatccgaatt cggcacgagn tttttcctgt tttttcttag tttttagtgt tcccggagca 60
ataacacaga tcaaagaacg gccattcagt ttaggctctg actcaacaaa acctatgtcc 120
tctaagccct gacacattct ttgaacaacc ttatgcccgt gttcgggata agccaactct 180
cgcccccgaa acatacaaga aacctttact ttatttctt tctcaataaaa ggctctagct 240
tgctttgctt tcgtaagaaa gtggttatca tcgatattag gcttaagctt aacctctttg 300
atacgcaact ggtgctgtgc tttcttacta tctttttctt ttttagttat gtcgtaacga 360
tacttcccgt agtccatgat tttgcacaca ggaggctctg agtttgaagc aacctcgtgc 420
cgaattc 427

```

<210> 47

<211> 600

<212> DNA

<213> Chlamydia

<220>

<221> unsure

<222> (522)

<223> n=A,T,C or G

<400> 47

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gatccgaatt cggcacgaga tgcttctatt acaattgggtt tggatgcgga aaaagcttac 60
cagcttattc tagaaaagtt gggagatcaa attcttgggtg gaattgctga tactattgtt 120
gatagtagacag tccaagatat tttagacaaa atcacacag acccttctct aggtttgttg 180
aaagcttttta acaactttcc aatcactaat aaaattcaat gcaacgggtt attcactccc 240
aggaacattg aaactttatt aggaggaact gaaataggaa aattcacagt cacacccaaa 300
agctctggga gcatgttctt agtctcagca gatattattg catcaagaat ggaaggcggc 360
gttgttctag ctttggtagc agaagggtgat tctaagccct acgcgattag ttatggatac 420
tcatcaggcg ttcctaattt atgtagtcta agaaccagaa ttattaatac aggattgact 480
ccgacaacgt attcattacg tgtaggcggt ttagaaagcg gngtggtatg ggtaaatgcc 540
ctttctaattg gcaatgatat tttaggaata acaaactctc taatgtatct tttttggagg 600

```

<210> 48

<211> 600

<212> DNA

<213> Chlamydia

<400> 48

```

ggagctcgaa ttcggcacga gctctatgaa tatccaattc tctaaactgt tcggataaaa 60
atgatgcagg aattaggtcc acactatctt tttttgtttc gcaaatgatt gatttttaaat 120
cgtttgatgt gtatactatg tcgtgtaagc ctttttgggtt acttctgaca ctagccccc 180
atccagaaga taaattggat tgcgggtcta ggtcagcaag taacactttt ttccctaaaa 240
attgggccaa gttgcatccc acgttttagag aaagtgttgt tttccagtt cctcccttaa 300
aagagcaaaa aactaagggtg tgcaaatcaa ctccaacgtt agagtaagtt atctattcag 360
ccttggaaaa catgtctttt ctagacaaga taagcataat caaagccttt tttagcttta 420
aactgttatc ctctaatttt tcaagaacag gagagtctgg gaataatcct aaagagtttt 480
ctatttgttg aagcagtcct agaattagt agacactttt atggtagagt tctaaggagg 540
aatttaagaa agttactttt tccttgttta ctctgtattt taggtctaatt tcggggaaat 600

```

<210> 49

<211> 600

<212> DNA

<213> Chlamydia

<400> 49

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gatccgaatt cggcacgaga tgcttctatt acaattgggtt tggatgcgga aaaagcttac 60
cagcttattc tagaaaagtt gggagatcaa attcttgggtg gaattgctga tactattgtt 120
gatagtagacag tccaagatat tttagacaaa atcacacag acccttctct aggtttgttg 180
aaagcttttta acaactttcc aatcactaat aaaattcaat gcaacgggtt attcactccc 240
aggaacattg aaactttatt aggaggaact gaaataggaa aattcacagt cacacccaaa 300
agctctggga gcatgttctt agtctcagca gatattattg catcaagaat ggaaggcggc 360
gttgttctag ctttggtagc agaagggtgat tctaagccct acgcgattag ttatggatac 420
tcatcaggcg ttcctaattt atgtagtcta agaaccagaa ttattaatac aggattgact 480
ccgacaacgt attcattacg tgtaggcggt ttagaaagcg gtgtggtatg ggtaaatgcc 540
ctttctaattg gcaatgatat tttaggaata acaaatactt ctaatgtatc ttttttggagg 600

```

<210> 50

<211> 406

<212> DNA

<213> Chlamydia

<400> 50
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 gctatcaaatt agcttattca gtctttcatt agttaaacga tcttttctag ccatgactca 120
 tcctatgttc ttcagctata aaaatacttc ttaaaacttg atatgctgta atcaaatacat 180
 cattaaccac aacataatca aattcgctag cggcagcaat ttcgacagcg ctatgctcta 240
 atctttcttt cttctggaaa tctttctctg aatcccgcagc attcaaacgg cgctcaagtt 300
 cttcttgaga gggagcttga ataaaaatgt gactgccggc atttgcttct tcagagccaa 360
 agtccttgt acatcaatca cggctatgca gtctcgtgcc gaattc 406

<210> 51
 <211> 602
 <212> DNA
 <213> Chlamydia

<400> 51
 gatccgaatt cggcacgaga tatttttagac aaaatcacaa cagacccttc tctaggtttg 60
 ttgaaagctt ttaacaactt tccaatcact aataaaattc aatgcaacgg gttattcact 120
 cccaggaaaca ttgaaacttt attaggaggga actgaaatag gaaaattcac agtcacaccc 180
 aaaagctctg ggagcatgtt cttagtctca gcagatatta ttgcatcaag aatggaaggc 240
 ggcgttggtc tagctttggg acgagaagggt gattctaagc cctacgcgat tagttatgga 300
 tactcatcag gcgttcctaa tttatgtagt ctaagaacca gaattattaa tacaggattg 360
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 gccctttcta atggcaatga tatttttagga ataacaaata cttctaattgt atcttttttg 480
 gaggttaatac ctcaaacaaa cgcttaaaca atttttattg gatttttctt ataggtttta 540
 tatttagaga aaaaagttcg aattacgggg tttgttatgc aaaataaact cgtgccgaat 600
 tc 602

<210> 52
 <211> 145
 <212> DNA
 <213> Chlamydia

<400> 52
 gatccgaatt cggcacgagc tcgtgccgat gtgttcaaca gcatccatag gatgggcagt 60
 caaatatact ccaagtaatt ctttttctct tttcaacaac tccttaggag agcgttggat 120
 aacattttca gctcgtgccg aattc 145

<210> 53
 <211> 450
 <212> DNA
 <213> Chlamydia

<400> 53
 gatccgaatt cggcacgagg taatcggcac cgcactgctg acactcatct cctcgagctc 60
 gatcaaacc acacttgagg caagtaccta caacataacg gtccgctaaa aacttccctt 120
 cttcctcaga atacagctgt tcggtcacct gattctctac cagtcgcgt tcttgcaagt 180
 ttcgatagaa atcttgacac atagcaggat gataagcgtt cgtagtcttg gaaaagaaat 240
 ctacagaaat tcccaatttc ttgaagggtat ctttatgaag cttatgatac atgtcgacat 300
 attcttgata ccccatgcct gccaaactctg cattaaagggt aattgcgatt ccgtattcat 360
 cagaaccaca aatatacaaa acctctttgc cttgtagtct ctgaaaacgc gcataaacat 420
 ctgcaggcaa ataagcctcg tgccgaattc 450

<210> 54
 <211> 716
 <212> DNA
 <213> Chlamydia

<400> 54

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gatcgaattt cggcacgagc ggcacgagtt ttctgatagc gatttacaat cctttattca 60
acttttgcct agagaggcac actatactaa gaagtttctt ggggtgtgtg cacagtctctg 120
tcgtcagggg attctgctag aggggtaggg gaaaaaaccc ttattactat gaccatgcgc 180
atgtggaatt acattccata gactttcgca tcattcccaa catttacaca gctctacacc 240
tcttaagaag aggtgacgtg gattgggtgg ggcagccttg gcaccaaggg attccttttg 300
agcttcggac tacctctgct ctctacaccc attaccctgt agatggcaca ttctggctta 360
ttcttaatcc caaagatcct gtactttcct ctctatctaa tcgtcagcga ttgattgctg 420
ccatccaaaa ggaaaaactg gtgaagcaag ctttaggaac acaatatcga gtagctgaaa 480
gctctccatc tccagaggga atcatagctc atcaagaagc ttctactcct tttcctggga 540
aaattacttt gatatatccc aataatatta cgcgctgtca gcgtttggcc gaggtatcca 600
aaaaatgatc gacaaggagc acgctaaatt tgtacatacc ccaaaatcaa tcagccatct 660
aggcaaatgg aatatcaaaq taaacagtat acaactgggg atctcgtgcc gaattc 716

```

<210> 55

<211> 463

<212> DNA

<213> Chlamydia trachomatis

<400> 55

```

tctcaaatcc ttgctttgaa taatccagat atttcaaaaa ccatgttcga taaattcacc 60
cgacaaggac tccgtttcgt actagaagcc tctgtatcaa atattgagga tataggagat 120
cgcgttcggt taactatcaa tgggaatgtc gaagaatacg attacgttct cgtatctata 180
ggacgocggt tgaatacaga aaatattggc ttggataaag ctggtgttat ttgtgatgaa 240
cgcggagtca tccctacgta tgccacaatg cgcacaaacg tacctaacad ttatgctatt 300
ggagatatca caggaaaatg gcaacttgcc catgtagctt ctcatcaagg aatcattgca 360
gcacggaata taggtggcca taaagaggaa atcgattact ctgctgtccc ttctgtgatc 420
tttaccttcc ctgaagtcgc ttcagtaggc ctctcccaa cag 463

```

<210> 56

<211> 829

<212> DNA

<213> Chlamydia trachomatis

<400> 56

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gtactatggg atcattagtt ggaagacagg ctccggattt ttctggtaaa gccgttggtt 60
gtggagaaga gaaagaaatc tctctagcag actttcgtgg taagtatgta gtgctcttct 120
tttatcctaa agattttacc tatgtttgtc ctacagaatt acatgctttt caagatagat 180
tggtagattt tgaagagcat ggtgcagtcg tccttggttg ctccgttgac gacattgaga 240
cacattctcg ttggctcact gtagcgagag atgcaggagg gatagaggga acagaatatc 300
ctctgttagc agaccctct tttaaaatat cagaagcttt tgggtgtttg aatcctgaag 360
gatcgcctgc ttttaagagct actttcctta tcgataaaca tggggttatt cgtcatgcgg 420
ttatcaatga tcttccttta gggcgttcca ttgacgagga attgcgtatt ttagattcat 480
tgatcttctt tgagaaccac ggaatgggtt gtccagctaa ctggcgcttct ggagagcgtg 540
gaatgggtgc ttctgaagag ggattaaaag aatacttcca gacgatggat taagcatctt 600
tgaaagtaag aaagtgcgtac agatcttgat ctgaaaagag aagaaggctt ttttaattttc 660
tgcagagagc cagcgagggt tcaataatgt tgaagtctcc gacaccaggc aatgctaagg 720
cgacgatatt agttagttaa gtctgagtat taaggaaatg aaggccaaag aaatagctat 780
caataaagaa gccttcttcc ttgactctaa agaatagtat gtcgtatcc 829

```

<210> 57

<211> 1537

<212> DNA

<213> Chlamydia trachomatis

<400> 57

```

acatcaagaa atagcggact cgcctttagt gaaaaaagct gaggagcaga ttaatcaagc 60
acaacaagat attcaaacga tcacacctag tggtttgat attcctatcg ttggtccgag 120
tgggtcagct gcttccgcag gaagtgcggc aggagcgttg aaatcctcta acaattcagg 180
aagaatttcc ttgttgcttg atgatgtaga caatgaaatg gcagcgattg caatgcaagg 240
ttttcgatct atgatcgaac aatttaatgt aaacaatcct gcaacagcta aagagctaca 300
agctatggag gctcagctga ctgcatgtgc agatcaactg gttggtgcgg atggcgagct 360
cccagccgaa atacaagcaa tcaaagatgc tcttgcgcaa gctttgaaac aaccatcagc 420
agatggttta gctacagcta tgggacaagt ggcttttgca gctgccaagg ttggaggagg 480
ctccgcagga acagctggca ctgtccagat gaatgtaaaa cagctttaca agacagcgtt 540
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aacactgaac tctttatatt ccgaaagcag aagcggcgtg cagtcagcta ttagtcaaac 660
tgcaaatccc gcgctttcca gaagcgtttc tcgctctggc atagaaagtc aaggacgcag 720
tgcatatgct agccaaagag cagcagaaac tattgtcaga gatagccaaa cgtaggtga 780
tgtatatagc cgcttacagg ttctggattc tttgatgtct acgattgtga gcaatccgca 840
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acagcccgtt ttcattcaac aggtgttggt aaacattgct tctctattct ctggttatct 1080
ttcttaacgt gtgattgaag tttgtgaatt gagggggagc caaaaaagaa tttctttttt 1140
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cttttctttc ggaatctgtc attggatctg cgtaagactt aaagttcggc aacacaggct 1440
ctgtcttctc tttaggtttc ttgcgcgaga aaaattttct caagtaacaa gaagatttct 1500
ttttacagcc ggcatccggc ttctcgcgaa gtataac 1537

```

```

<210> 58
<211> 463
<212> DNA
<213> Chlamydia trachomatis

```

```

<400> 58
totcaaatcc ttgctttgaa taatccagat atttcaaaaa ccatgttcga taaattcacc 60
cgacaaggac tccgtttcgt actagaagcc tctgtatcaa atattgagga tataggagat 120
cgcgttcggt taactatcaa tgggaatgtc gaagaatacg attacgttct cgtatctata 180
ggacgccggt tgaatacaga aaatattggc ttggataaag ctggtgttat ttgtgatgaa 240
cgcgaggtca tccctaccga tgccacaatg cgcacaaacg tacctaacat ttatgctatt 300
ggagatatca caggaaaatg gcaacttgcc catgtagctt ctcatcaagg aatcattgca 360
gcacggaata taggtggcca taaagaggaa atcgattact ctgctgtccc ttctgtgatc 420
tttaccttcc ctgaagtgcg ttcagtaggc ctctcccaa cag 463

```

```

<210> 59
<211> 552
<212> DNA
<213> Chlamydia trachomatis

```

```

<400> 59
acattcctcc tgcctctcgc ggccatccac aaattgaggt aaccttcgat attgatgcca 60
acggaatttt acacgtttct gctaaagatg ctgctagtgg acgcgaacaa aaaatccgta 120
ttgaagcaag ctctggatta aaagaagatg aaattcaaca aatgatccgc gatgcagagc 180
ttcataaaga ggaagacaaa caacgaaaag aagcttctga tgtgaaaaat gaagccgatg 240
gaatgatctt tagagccgaa aaagctgtga aagattacca cgacaaaatt cctgcagaac 300
ttgttaaaga aattgaagag catattgaga aagtagccca agcaatcaa gaagatgctt 360
ccacaacagc tatcaaagca gcttctgatg agttgagtag tcgtatgcaa aaaatcggag 420
aagctatgca ggctcaatcc gcatccgcag cagcatcttc tgcagcgaat gctcaaggag 480
ggccaaacat taactccgaa gatctgaaaa aacatagttt cagcacacga cctccagcag 540

```

gaggaagcgc ct

552

<210> 60
 <211> 1180
 <212> DNA
 <213> Chlamydia trachomatis

<400> 60

```

atcctagcgg taaaactgct tactgggtcag ataaaatcca tacagaagca acacgtactt 60
cttttaggag aaaaaatcta taatgctaga aaaatcctga gtaaggatca cttctcctca 120
acaacttttt catcttgat agagtttagt tttagaacta agtcttctgc ttacaatgct 180
cttgcatatt acgagctttt tataaacctc cccaaccaa ctctacaaa agagtttcaa 240
tcgatccctc ataaatccgc atatatatttg gccgctagaa aaggcgattt aaaaaccaag 300
gtcgtatgta tagggaaagt atgtggaatc tcgtgccgaa ttcggcacga gcggcacgag 360
gatgtagagt aattagttaa agagctgcat aattatgaca aagcatggaa aacgcattcg 420
tggtagctaa gagacttacg atttagctaa gtcgtattct ttgggtgaag ctagatagat 480
tttaaaacag tgtcctactg tgcgtttcga tcaaacggtt gatgtgtctg ttaaattagg 540
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tgacttcgat gttgcggttg ccactcccg tatgatgaga gaggtcggaa agctaggaaa 780
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gattgcgtta taattctaag tttaaagagg aaaaatgaaa gaagagaaaa agttgctgct 1140
tcgcgaggtt gaagaaaaga taaccgcttc tcggcacgag 1180

```

<210> 61
 <211> 1215
 <212> DNA
 <213> Chlamydia trachomatis

<400> 61

```

attacagcgt gtgcaggtaa cgacatcatt gcatgatgct tttgatggca ttgatgcggc 60
attccttata gggtcagttc ctagaggccc aggaatggag agaagagatc ttctaaagaa 120
aaatggggag attgttgcta cgcaaggaaa agctttgaac acaacagcca agcgggatgc 180
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gggaaatcac tccgccaaac aagtgcctga ttttacgcaa gctctgatta atgaccgtcc 420
tatcgagag acgatagcgg atcggtgatt gttagagaat attatggtgc cttctgtaca 480
gagtcgtggt agtgcagtaa ttgaagcacg agggaagtct tcggcagctt ctgcagcacg 540
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ggcacgagta tcgaaattgc aggcatttct agtgaatggt cgtatgctta taaactacgt 660
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tgccctctc gccgttatac ttatggggca gacccttgcg ctccggcccg agagttcaag 1140
actcttgta aagcgttaca ccgtgcggga atcgaaagtca ttctcgatgt cgttttcaat 1200
catacaggct ttgaa 1215

```

<210> 62
 <211> 688
 <212> DNA
 <213> Chlamydia trachomatis

<400> 62
 gtggatccaa aaaagaatct aaaaagccat acaaagattg cgttacttct tgcgatgcct 60
 ctaacacttt atcagcgta tctttgagaa gcatctcaat gagcgctttt tcttctctag 120
 catgccgcac atccgcttct tcatgttctg tgaaatatgc atagtcttca ggattggaaa 180
 atccaaagta ctcagtcaat ccacgaattt tctctctagc gatacgtgga atttgactct 240
 cataagaata caaagcagcc actcctgcag cttaaagaatc tcctgtacac caccgcatga 300
 aagtagctac tttcgctttt gctgcttcac taggctcatg agcctctaac tcttctggag 360
 taactcctag agcaaacaca aactgcttcc acaaatcaat atgattaggg taaccgttct 420
 cttcatccat caagttaatct aacaataact tacgcgcctc taaatcatcg caacgactat 480
 gaatcgacga taaatatatta ggaaaggctt tgatatgtaa ataatagtct ttggcacgag 540
 cctgtaattg ctcttttagta agctccccct tcgaccattt cacataaaac gtgtgttcta 600
 gcatatgctt attttgaata attaaatcta actgatctaa aaaattcata aacacctcca 660
 tcatttcttt tcttgactcc acgtaacc 688

<210> 63
 <211> 269
 <212> DNA
 <213> Chlamydia trachomatis

<400> 63
 atgttgaaat cacacaagct gttcctaaat atgctacggt aggatctccc tctcctgttg 60
 aaattactgc tacaggtaaa agggattgtg ttgatgttat cattactcag caattaccat 120
 gtgaagcaga gttcgtacgc agtgatccag cgacaactcc tactgctgat ggtaagctag 180
 tttggaaaat tgaccgctta ggacaaggcg aaaagagtaa aattactgta tgggtaaaac 240
 ctcttaaaga aggttgctgc tttacagct 269

<210> 64
 <211> 1339
 <212> DNA
 <213> Chlamydia trachomatis

<400> 64
 cttttattat ggcttctggg gatgatgtca acgatatcga cctgctatct cgaggagatt 60
 ttaaaattgt tatacagacg gctccagagg agatgcatgg attagcggac tttttggctc 120
 ccccgcgaa ggatcttggg attctctccg cctgggaagc tggtagctg cgttacaaac 180
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 gatagtattc actcggactc cccaacgtcg gccggcttcc caagccagta cttttgtatc 480
 actttctaaa gcagcttttg ctgcgttcat tcctccgcca taccctggaa cagcacgcat 540
 ggaagcaaga taagttagag agatggtgct agctcctgca ttcataattg ggccaaaatg 600
 agagagaagg ctgataaagg agtagctgga tgtacttaag gcggcaagat agcctttacg 660
 agaggtatca agtaatggtt tagcaatttc cggactgttt gctaaaagat gaacaagaat 720
 atcaatgtgt ccaaaatctt tttcacctg ttctacaact tcggatacag tgtaccaga 780
 aagatctttg taacgtttat tttccaaaat ttctgagga atatcttctg ggggtgtcgaa 840
 actggcatcc atgggataga ttttagcgaa agttagcaat tctccattgg agagtccacg 900
 agatgcattg aattttccta actcccaaga ttgagagaaa attttataga taggaacca 960
 ggtccccaca agtatggttg cgctgcttc tgctaacatt ttggcaatgc cccagccata 1020
 cccgttatca tcgcctatgc cggctatgaa agcaattttt cctgttaaat caattttcaa 1080
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aaagagtttc cttgtcaaat tcttatatgg gtagagttaa tcaactgttt tcaagtgatt 1260
 tatgtttatt ttaaaataat ttgttttaac aactgtttta tagttttaat ttttaaagtg 1320
 tgaaaaacag gttttatat 1339

<210> 65
 <211> 195
 <212> PRT
 <213> Chlamydia trachomatis

<400> 65
 Met Gly Ser Leu Val Gly Arg Gln Ala Pro Asp Phe Ser Gly Lys Ala
 5 10 15
 Val Val Cys Gly Glu Glu Lys Glu Ile Ser Leu Ala Asp Phe Arg Gly
 20 25 30
 Lys Tyr Val Val Leu Phe Phe Tyr Pro Lys Asp Phe Thr Tyr Val Cys
 35 40 45
 Pro Thr Glu Leu His Ala Phe Gln Asp Arg Leu Val Asp Phe Glu Glu
 50 55 60
 His Gly Ala Val Val Leu Gly Cys Ser Val Asp Asp Ile Glu Thr His
 65 70 75 80
 Ser Arg Trp Leu Thr Val Ala Arg Asp Ala Gly Gly Ile Glu Gly Thr
 85 90 95
 Glu Tyr Pro Leu Leu Ala Asp Pro Ser Phe Lys Ile Ser Glu Ala Phe
 100 105 110
 Gly Val Leu Asn Pro Glu Gly Ser Leu Ala Leu Arg Ala Thr Phe Leu
 115 120 125
 Ile Asp Lys His Gly Val Ile Arg His Ala Val Ile Asn Asp Leu Pro
 130 135 140
 Leu Gly Arg Ser Ile Asp Glu Glu Leu Arg Ile Leu Asp Ser Leu Ile
 145 150 155 160
 Phe Phe Glu Asn His Gly Met Val Cys Pro Ala Asn Trp Arg Ser Gly
 165 170 175
 Glu Arg Gly Met Val Pro Ser Glu Glu Gly Leu Lys Glu Tyr Phe Gln
 180 185 190
 Thr Met Asp
 195

<210> 66
 <211> 520
 <212> DNA
 <213> Chlamydia

<400> 66
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 tgatgtaaat tagcgcaatt agagggggat gaggttactt ggaaatataa ggagcgaagc 180
 gatgaaggag atgtatttgc tctggaagca aagggttctg aagctaacag aacattgcgt 240
 cctccaacaa tcgcctgagg attctggctc atcagttgat gctttgcctg aatgagagcg 300
 gacttaagtt tcccatcaga gggagctatt tgaattagat aatcaagagc tagatccttt 360
 attgtgggat cagaaaattt acttgtgagc gcacgcagaa tttcgtcaga agaagaatca 420
 tcatcgaacg aatttttcaa tcttcgaaaa tcttctccag agacttcgga aagatcttct 480
 gtgaaacgat cttcaagagg agtatcgctt ttttctctg 520

<210> 67

<211> 276

<212> DNA

<213> Chlamydia

<400> 67

gatccgaatt cggcaccgagg tattgaagga gaaggatctg actcgatcta tgaaatcatg 60
 atgcctatct atgaagttat gaatatggat ctagaacac gaagatcttt tgcggtacag 120
 caagggaact atcaggaccc aagagcttca gattatgacc tcccacgtgc tagcgactat 180
 gatttgccta gaagcccata tctactcca cctttgcctt ctagatatca gctacagaat 240
 atggatgtag aagcagggtt ccgtgaggca gtttat 276

<210> 68

<211> 248

<212> DNA

<213> Chlamydia

<400> 68

gatccgaatt cggcaccgagg tgttcaagaa tatgtccttc aagaatgggt taaattgaaa 60
 gatctaccgg tagaagagtt gctagaaaaa cgatatcaga aattccgaac gataggtcta 120
 tatgaaactt cttctgaaag cgattctgag gcataagaag catttagttt tattcggttt 180
 ttctctttta tccatattag ggctaacgat aacgtctcaa gcagaaattt tttctctag 240
 tcttattg 248

<210> 69

<211> 715

<212> DNA

<213> Chlamydia

<220>

<221> unsure

<222> (34)

<223> n=A,T,C or G

<400> 69

gatccgaatt cggcaccgaga aggtagatcc gatntcagca aaagtgcctc taaaggaaga 60
 ttccttcggt atcctgcagc aaataagggt gcacactcca tctcggacag tttgagcttt 120
 attttcatat agttttcgac ggaactcttt attaaactcc caaaaccgaa tgtagtcgt 180
 gtgggtgatg cctatatggt aaggagggtt tttggcttcg agaattattg tgatcatttt 240
 ttgtacgaca aaattagcta atgcagggac ctctgggggg aagtatgcat ctgatgttcc 300
 atcttttcg atgctagcaa cagggacaaa ataatctcct atttggtagt gggatcttaa 360
 gcctccgcac atgcccacaa tgatcgctgc tgtagcattg ggaaggaaag aacacagatc 420
 tacggtaaga gctgctcctg gagagcctaa tttaaaatcg atgattgagg tgtgaatttg 480
 aggcgcagtc gctgccgaaa acatggatcc tcgagaaaca gggacctgat agatttcagc 540
 gaaaacatcc acggtaatat ccmaaattag taagaaggag atagggctgg aactcttgaa 600
 tggtagagcc ggtatagcgc tctagcatgt cacaggcgat tgtttcttcg ctgatttttt 660
 tatgttgatg ggtcataaat cacagatatt ataattggtta gagaatcttt ttttc 715

<400> 70

```
<210> 71
<211> 715
<212> DNA
<213> Chlamydia
```

<400> 71

```
<210> 72
<211> 641
<212> DNA
<213> Chlamydia
```

 $\langle 220 \rangle$

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<221> unsure
<222> (550)
<223> n=A,T,C or G
<221> unsure
<222> (559)
<223> n=A,T,C or G
<221> unsure
<222> (575)
<223> n=A,T,C or G
<221> unsure
<222> (583)
<223> n=A,T,C or G
<221> unsure
<222> (634)
<223> n=A,T,C or G
<221> unsure
<222> (638)
<223> n=A,T,C or G

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<400> 72

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ctacaacata acggtccgct aaaaacttcc cttcttctc agaatacagc tgttcggtca 120
cctgattctc taccagtcg cggttcctgca agtttcgata gaaatcttgc acaatagcag 180
gatgataagc gttcgtagtt ctggaaaaga aatctacaga aattcccaat ttcttgaagg 240
tatctttatg aagcttatga tacatgtcga catattcttg ataccccatg cctgccaaact 300
ctgcattaag ggtaattgcg attccgtatt catcagaacc acaaataac aaaacctctt 360
tgccttgtag tctctgaaaa cgcgcataaa catctgcagg caaataagca ccggtaatat 420
gtccaaaatg caaaggacca ttgcgtaag gcaacgcaga agtaataaga atacgggaag 480
attccactat ttcacgtcgc tccagttgta gagagaagga tcttttcttc tggatgttcc 540
gaaaccttgn tctcttcgnc tctctcctgt agcanacaaa tgnctctctc gacatctctt 600
tcagcgtatt cggactgatg ccctaaagat ccnnggangt t 641

```

<210> 73

<211> 584

<212> DNA

<213> Chlamydia

<220>

<221> unsure

<222> (460)

<223> n=A,T,C or G

<221> unsure

<222> (523)

<223> n=A,T,C or G

<221> unsure

<222> (541)

<223> n=A,T,C or G

<221> unsure

<222> (546)

<223> n=A,T,C or G

<400> 73

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agatgacttt aagcaatctt tagatagggg agattttttg gaatgggtct ttttatttgg 120
gacttattac ggaacgagta aggcggagat ttctagagtt ctgcaaaagg gtaagcactg 180
catagccgtg attgatgtac aaggagcttt ggctctgaag aagcaaatgc cggcagtcac 240
tatttttatt caagctccct ctcaagaaga acttgagcgc cgtttgaaatg ctcgggattc 300
agagaaagat ttccagaaga aagaaagatt agagcatagc gctgtcgaaa ttgctgccgc 360
tagcgaattt gattatgttg tggttaatga tgatttgatt acagcatatc aagttttaag 420
aagtattttt atagctgaag aacataggat gagtcatggn tagaaaagat cgtttaacta 480
atgaaagact gaataagcta tttgatagcc cctttagttt ggntaattac gtaattaagc 540
nagctnagaa caaaattgct agaggagatg ttcgttcttc taac 584

```

<210> 74

<211> 465

<212> DNA

<213> Chlamydia

<400> 74

```

gatccgaatt cggcacgagc tcgtgccgtt tgggatcgtg taatcgcac ggagaatggt 60
taagaaatta ttttcgagtg aaagagctag gcgtaatcat tacagatagc catactactc 120
caatgcggcg tggagtactg ggtatcgggc tgtgttggtg tggattttct ccattacaca 180
actatatagg atcgctagat tgtttcggtc gtcccttaca gatgacgcaa agtaatcttg 240
tagatgcctt agcagttgcg gctgttggtt gtatgggaga ggggaatgag caaacaccgt 300
tagcgggtgat agagcaggca cctaatatgg tctaccattc atatcctact tctcgagaag 360
agtattgttc tttgcgcata gatgaaacag aggacttata cggacctttt ttgcaagcgg 420

```

ttaccgtgga gtcaagaaaa gaaatgatgg aggtgtttat gaatt

465

<210> 75

<211> 545

<212> DNA

<213> Chlamydia

<400> 75

| | | | | | | |
|------------|------------|------------|------------|------------|------------|-----|
| gaattcggca | cgagatgaaa | agttagcgtc | acaggggatt | ctcctacca | agaattccga | 60 |
| aaagttttct | tccaaaaacc | tcttcctctc | ttgattagtg | atccctctgc | aactacttta | 120 |
| ctatatgttc | tgtgaaatat | gcatagtctt | caggattgga | aaatccaaag | tactcagtca | 180 |
| atccacgaat | tttctctcta | gcgatacgtg | gaatttgact | ctcataagaa | tacaaagcag | 240 |
| ccactcctgc | agctaaagaa | tctcctgtac | accaccgcat | gaaagtagct | actttcgctt | 300 |
| ttgctgcttc | actaggctca | tgagcctcta | actcttctgg | agtaactcct | agagcaaaca | 360 |
| caaactgctt | ccacaaatca | atatgattag | ggtaaccgtt | ctcttcatcc | atcaagttat | 420 |
| ctaacaataa | cttacgcgcc | tctaaatcat | cgcaacgact | atgaatcgca | gataaatatt | 480 |
| taggaaaggc | tttgatatgt | aaataatagt | ctttggcata | cgctgtaat | tgctctttag | 540 |
| taagc | | | | | | 545 |

<210> 76

<211> 797

<212> DNA

<213> Chlamydia

<220>

<221> unsure

<222> (788)

<223> n=A,T,C or G

<221> unsure

<222> (789)

<223> n=A,T,C or G

<400> 76

| | | | | | | |
|-------------|-------------|------------|------------|-------------|-------------|-----|
| gatccgaatt | cggcacgaga | tacgctagat | gcgataaatg | cggataatga | ggattatcct | 60 |
| aaaccagggtg | acttcccacg | atcttccttc | tctagtagcg | ctcctcatgc | tccagtacct | 120 |
| caatctgaga | ttccaacgtc | acctacctca | acacagcctc | catcaccccta | acttgtaaaa | 180 |
| actgtaataa | aaagagcgcg | cttcctttat | gcaaaatcaa | tttgaacaac | tccttactga | 240 |
| attaggggact | caaatacaaca | gccctcttac | tcttgattcc | aataatgcct | gtatagttcg | 300 |
| ctttggatcac | aacaatggtg | ctgtacaaat | tgaagaggat | ggtaattcag | gattttttagt | 360 |
| tgctggagtc | atgcttggaa | aacttccaga | gaataacctt | agacaaaaaa | ttttcaaagc | 420 |
| tgctttgtct | atcaatggat | ctccgcaatc | taatattaaa | ggcactctag | gatacgggtga | 480 |
| aatctctaac | caactctatc | tctgtgatcg | gcttaacatg | acctatctaa | atggagaaaa | 540 |
| gctcgcccg | tacttagttc | ttttttcgca | gcatgccaat | atctggatgc | aatctatctc | 600 |
| aaaaggagaa | cttccagatt | tacatgctct | aggtatgtat | cacctgtaaa | ttatgccgtc | 660 |
| attatcccaa | tcccgcagta | tcatccagca | atcttccatt | cgaaagattt | ggaatcagat | 720 |
| agatacttct | cctaagcatg | gggggatgcg | taccggttat | ttttctcttc | atactcaaaa | 780 |
| aaagttgnng | gggaata | | | | | 797 |

<210> 77

<211> 399

<212> DNA

<213> Chlamydia

<400> 77

| | | | | | | |
|------------|------------|------------|------------|------------|------------|-----|
| catatgcac | accatcacca | tcacatgcc | cgcatcattg | gaattgatat | tcctgcaaag | 60 |
| aaaaagttaa | aaataagtct | gacatatatt | tatggaatag | gatcagctcg | ttctgatgaa | 120 |
| atcattaaaa | agttgaagtt | agatcctgag | gcaagagcct | ctgaattaac | tgaagaagaa | 180 |

gtaggacgac tgaactctct gctacaatca gaatataccg tagaagggga tttgcgacgt 240
 cgtgttcaat cggatatcaa aagattgac gccatccatt cttatcgagg tcagagacat 300
 agactttctt taccagtaag aggacaacgt acaaaaacta attctcgtag tcgaaaaggt 360
 aaaagaaaaa cagtcgcagg taagaagaaa taagaattc 399

<210> 78

<211> 285

<212> DNA

<213> Chlamydia

<400> 78

atgcatcacc atcaccatca catgagtcaa aaaaataaaa actctgcttt tatgcatccc 60
 gtgaatatatt ccacagattt agcagttata gttggcaagg gacctatgcc cagaaccgaa 120
 attgtaaaga aagtttggga atacattaaa aaacacaact gtcaggatca aaaaaataaa 180
 cgtaatatcc ttcccgatgc gaatcttgcc aaagtctttg gctctagtga tcctatcgac 240
 atgttccaaa tgaccaaagc cctttccaaa catattgtaa aataa 285

<210> 79

<211> 950

<212> DNA

<213> Chlamydia

<400> 79

aaattaactc gagcacaat tacggcaatt gctgagcaaa agatgaagga catggatgtc 60
 gttcttttag agtccgcca gagaatgggt gaagggaactg cccgaagcat ggggtgtagat 120
 gtagagtaat tagttaaaga gctgcataat tatgacaaag catggaaaac gcattcgtgg 180
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 aaaacagtgt cctactgtgc gtttcgatca aacggttgat gtgtctgtta aattagggat 300
 cgatccaaga aagagtgatc agcaaattcg tggttcgggt tctttacctc acggtacagg 360
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 aggagcggac tttgttggtg gcgacgactt ggtagaaaaa atcaaagggtg gatgggttga 480
 cttcgatggt gcggttgcca ctcccgatat gatgagagag gtcggaaaagc taggaaaagt 540
 tttaggtcca agaaacctta tgccacgcc taaagccgga actgtaacaa cagatgtggt 600
 taaaactatt gcggaactgc gaaaaggtaa aattgaattt aaagctgac gagctgggtg 660
 atgcaacgtc ggagttgcga agctttcttt cgatagtgcg caaatcaaag aaaatggtga 720
 agcgttgtgt gcagccttag ttaaagctaa gcccgcaact gctaaaggac aatatttagt 780
 taatttcact atttcctcga ccatggggcc aggggttacc gtggatacta gggagttgat 840
 tgcgttataa ttctaagttt aaagaggaaa aatgaaagaa gagaaaaagt tgctgcttcg 900
 cgaggttgaa gaaaagataa ccgcttctca aggttttatt ttgttgagat 950

<210> 80

<211> 395

<212> DNA

<213> Chlamydia

<400> 80

tttcaaggat tttgttttcc cgatcatctt actaaatgca gctccaacaa tcacatcatg 60
 ggctggttta gcactaagg caacagaagc tcctctgctg taataagtga attcttcaga 120
 agtaggtgtt cctacttgcg atagcatcgt tcctagtctt gatattcaca ggttggtata 180
 gctaacttca tcaaagcag ctagattcat tttatcggtt agcaagcctt gtttgactgt 240
 gaccattgac atttgagatc ccagaatcga gttcgcatag aaatgattgt ctctaggtac 300
 ataagcccat tgtctataag agtcaaattt ccagagcgct gagatcgttc cattttgtag 360
 ttgatcagga tccagagtga gtgttctgt atatc 395

<210> 81

<211> 2085

<212> DNA

<213> Chlamydia

<400> 81

atttggcgaa ggagtttggg ctacggctat taataaatca ttcgtgttcg ctgcctccaa 60
 gaccagattg tgtactttct tatgaagaat ctccatttga gcaaatgttg cgttggggag 120
 agtctcagtt agaacaattt gctcaagtag gtttagatac aagttggcaa gttgttttcg 180
 atccaggaat aggatttggg aagactcccg ttcagtcgat gttattgatg gatggagtaa 240
 agcagtttaa acgtgtttta gagtgtcctg tattaatagg ccattctaga aaatcgtgtt 300
 tgagtatgtt gggccgattt aatagtgacg atcgtgattg ggaaacgacg ggctgttctg 360
 tatctcttca tgatcgagga gttgattatc tacgtgtgca tcaggttgaa ggtaacagac 420
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 gatgcattca ccacaatgca taggagtttc ttcctttgca gagtatggga cactatcttt 720
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 taaatattta totgcgattc atagtcgttg cgatgattta gaggcgcgta agttattgtt 1860
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 tgtgtttgct ctaggagtta ctccagaaga gtttagaggc catgagccta gtgaagcagc 1980
 aaaagcgaaa gtagctactt tcatgcggtg gtgtacagga gattctttag ctgcaggagt 2040
 ggctgctttg tattcttatg agagtcaaat tccacgtatc gcctc 2085

<210> 82

<211> 405

<212> DNA

<213> Chlamydia

<400> 82

ttcacgtgtc tagttcgcta ttctactctc caatggttcc gcatttttgg gcagagcttc 60
 gcaatcatta tgcaacgagt ggtttgaaaa gcgggtacaa tattgggagt accgatgggt 120
 ttctccctgt cattgggcct gttatatggg agtcggaggg tcttttccgc gcttatattt 180
 tttcgttgac gatgggggat ggtaagagcc ataaagttag atttctaaga attcctatat 240
 atagttggca ggacatggaa gattttgatc cttcaggacc gcctccttgg gaagaattgt 300
 attggctcca taaagggagg agaaaacttc gatataggga atcgtatcaa ggtgaaagta 360
 gcaaaaaata aattagctcc tccattccga actgcagaat ttgat 405

<210> 83

<211> 379

<212> DNA

<213> Chlamydia

<400> 83

| | | | | | | |
|-------------|------------|------------|------------|-------------|------------|-----|
| tataaccattc | gtttgaaagt | gcctttgacg | ggagaaagtg | tttttgaaga | tcaatgcaaa | 60 |
| ggtcgtgtcg | ttttcccttg | ggcagatggt | gacgatcaag | ttttggttaa | atcagacggg | 120 |
| ttccctacgt | atcactttgc | taatgtagtt | gatgatcatt | tgatggggat | tacccatgtg | 180 |
| ttgcgagggg | aagagtgggt | aagttctaca | cctaaacacc | ttcttcttta | caaagctttt | 240 |
| gggtgggagc | ctccgcagtt | tttccatatg | ccgcttcttc | taaatacctga | tggaagtaag | 300 |
| ctttccaaga | gaaagaatcc | tacttctatt | ttttactatc | gggatgctgg | atacaaaaaa | 360 |
| gaagcgttca | tgaatttcc | | | | | 379 |

<210> 84

<211> 715

<212> DNA

<213> Chlamydia

<400> 84

| | | | | | | |
|------------|------------|------------|------------|------------|------------|-----|
| tcaatcctgt | attaataatt | ctggttctta | gactacataa | attaggaacg | cctgatgagt | 60 |
| atccataact | aatcgcgtag | ggcttagaat | caccttctcg | taccaaagct | agaacaacgc | 120 |
| cgccttccat | tcttgatgca | ataatatctg | ctgagactaa | gaacatgctc | ccagagcttt | 180 |
| tgggtgtgac | tgtgaatttt | cctatttctg | ttcctcctaa | taaagtttca | atgttccttg | 240 |
| gagtgaataa | cccgttgcac | tgaattttat | tagtgattgg | aaagttgtta | aaagctttca | 300 |
| acaaacctag | agaagggctc | gttgtgattt | tgtctaaaat | atcttggact | gtactatcaa | 360 |
| caatagtatc | agcaattcca | ccaagaattt | gatctcccaa | cttttctaga | ataagctggg | 420 |
| aagctttttc | cgcacccaaa | ccaattgtaa | tagaagcatt | gggtgatgga | ttattggaga | 480 |
| ctgttaaaga | tattccatca | gaagctgtca | ttttggctgc | gacaggtggt | gatgttgtcc | 540 |
| caaggattat | ttgctgggtc | ttgagcggct | ctgtcatttg | cccaactttg | atattatcag | 600 |
| caaagacgca | gttttgagtg | ttatacaaat | aaaaaccaga | atttcccatt | ttaaaactct | 660 |
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<210> 85

<211> 476

<212> DNA

<213> Chlamydia

<400> 85

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| cgattacgtt | tatcatggat | aagcgttaatt | ggatagaaac | cgagtctgaa | caggtacaag | 120 |
| tgggttttcag | agatagtaca | gcttgcttag | gaggaggcgc | tattgcagct | caagaaattg | 180 |
| tttctattca | gaacaatcag | gctgggattt | ccttcgaggg | aggtaaggct | agtttcggag | 240 |
| gaggtattgc | gtgtggatct | ttttcttccg | caggcgggtgc | ttctgtttta | gggactattg | 300 |
| atatttcgaa | gaatttaggc | gcgatttctg | tctctcgtac | tttatgtacg | acctcagatt | 360 |
| taggacaaat | ggagtaccag | ggaggaggag | ctctatttgg | tgaaaatatt | tctctttctg | 420 |
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<210> 86

<211> 1551

<212> DNA

<213> Chlamydia

<400> 86

| | | | | | | |
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| aacctactct | catgtattac | gggattttatc | tgtgagtatg | gatgcgctgt | tttctcgtaa | 120 |
| cacgcttgct | gttcttttag | gttttagtctc | tagcgtttta | gataatgtgc | cattagtgcg | 180 |
| tgcaacaata | ggtatgtatg | acttacctat | gaacgatcct | ctttggaaac | tcattgccta | 240 |
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| gggaatggaa | aaagtgaagt | tcggctggta | tgtcaaacac | gcttcttgga | ttgcttttagc | 360 |
| cagttatttt | ggaggtctag | cagtctatct | tctaattggaa | aattgtgtga | atttgttcgt | 420 |

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 atatttcttc ggtgactgat ggggatggta agagccataa agtaggattt ctaagaattc 1500
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<210> 87

<211> 3031

<212> DNA

<213> Chlamydia

<400> 87

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 agaaagatgc agatactctt cccgggaagg tagagcaaag tactttgttc tcagtaacca 180
 atcccgtggt tttccaaggt gtggaccaac aggatcaagt ctcttcccaa gggttaattt 240
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 aatttgcatc atgttcttct ctagaacagg ggggagcttg tgcagctcaa agtattttga 480
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<210> 90
<211> 474
<212> PRT
<213> Chlamydia
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| | | | | 5 | | | | | | 10 | | | | | 15 | |
| Val | Val | Ile | Gly | Ala | Gly | Pro | Gly | Gly | Tyr | Val | Ala | Ala | Ile | Thr | Ala | |
| | | | 20 | | | | | 25 | | | | | | 30 | | |
| Ala | Gln | Ala | Gly | Leu | Lys | Thr | Ala | Leu | Ile | Glu | Lys | Arg | Glu | Ala | Gly | |
| | | 35 | | | | | 40 | | | | | 45 | | | | |
| Gly | Thr | Cys | Leu | Asn | Arg | Gly | Cys | Ile | Pro | Ser | Lys | Ala | Leu | Leu | Ala | |
| | 50 | | | | | 55 | | | | | 60 | | | | | |
| Gly | Ala | Glu | Val | Val | Thr | Gln | Ile | Arg | His | Ala | Asp | Gln | Phe | Gly | Ile | |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 | |
| His | Val | Glu | Gly | Phe | Ser | Ile | Asn | Tyr | Pro | Ala | Met | Val | Gln | Arg | Lys | |
| | | | | 85 | | | | 90 | | | | | | 95 | | |
| Asp | Ser | Val | Val | Arg | Ser | Ile | Arg | Asp | Gly | Leu | Asn | Gly | Leu | Ile | Arg | |
| | | | 100 | | | | | 105 | | | | | 110 | | | |
| Ser | Asn | Lys | Ile | Thr | Val | Phe | Ser | Gly | Arg | Gly | Ser | Leu | Ile | Ser | Ser | |
| | | 115 | | | | | 120 | | | | | 125 | | | | |
| Thr | Glu | Val | Lys | Ile | Leu | Gly | Glu | Asn | Pro | Ser | Val | Ile | Lys | Ala | His | |
| | 130 | | | | | 135 | | | | | 140 | | | | | |
| Ser | Ile | Ile | Leu | Ala | Thr | Gly | Ser | Glu | Pro | Arg | Ala | Phe | Pro | Gly | Ile | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | |
| Pro | Phe | Ser | Ala | Glu | Ser | Pro | Arg | Ile | Leu | Cys | Ser | Thr | Gly | Val | Leu | |
| | | | | 165 | | | | | 170 | | | | | 175 | | |
| Asn | Leu | Lys | Glu | Ile | Pro | Gln | Lys | Met | Ala | Ile | Ile | Gly | Gly | Gly | Val | |
| | | | 180 | | | | | 185 | | | | | 190 | | | |
| Ile | Gly | Cys | Glu | Phe | Ala | Ser | Leu | Phe | His | Thr | Leu | Gly | Ser | Glu | Val | |
| | | 195 | | | | | 200 | | | | | 205 | | | | |

Ser Val Ile Glu Ala Ser Ser Gln Ile Leu Ala Leu Asn Asn Pro Asp
 210 215 220
 Ile Ser Lys Thr Met Phe Asp Lys Phe Thr Arg Gln Gly Leu Arg Phe
 225 230 235 240
 Val Leu Glu Ala Ser Val Ser Asn Ile Glu Asp Ile Gly Asp Arg Val
 245 250 255
 Arg Leu Thr Ile Asn Gly Asn Val Glu Glu Tyr Asp Tyr Val Leu Val
 260 265 270
 Ser Ile Gly Arg Arg Leu Asn Thr Glu Asn Ile Gly Leu Asp Lys Ala
 275 280 285
 Gly Val Ile Cys Asp Glu Arg Gly Val Ile Pro Thr Asp Ala Thr Met
 290 295 300
 Arg Thr Asn Val Pro Asn Ile Tyr Ala Ile Gly Asp Ile Thr Gly Lys
 305 310 315 320
 Trp Gln Leu Ala His Val Ala Ser His Gln Gly Ile Ile Ala Ala Arg
 325 330 335
 Asn Ile Gly Gly His Lys Glu Glu Ile Asp Tyr Ser Ala Val Pro Ser
 340 345 350
 Val Ile Phe Thr Phe Pro Glu Val Ala Ser Val Gly Leu Ser Pro Thr
 355 360 365
 Ala Ala Gln Gln Gln Lys Ile Pro Val Lys Val Thr Lys Phe Pro Phe
 370 375 380
 Arg Ala Ile Gly Lys Ala Val Ala Met Gly Glu Ala Asp Gly Phe Ala
 385 390 395 400
 Ala Ile Ile Ser His Glu Thr Thr Gln Gln Ile Leu Gly Ala Tyr Val
 405 410 415
 Ile Gly Pro His Ala Ser Ser Leu Ile Ser Glu Ile Thr Leu Ala Val
 420 425 430
 Arg Asn Glu Leu Thr Leu Pro Cys Ile Tyr Glu Thr Ile His Ala His
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 Thr Pro Leu His Met Pro Pro Ala Lys Lys
 465 470

<210> 91
 <211> 129
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0984132-043301

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 130 135 140
 Ala Val Ile Asn Asp Leu Pro Leu Gly Arg Ser Ile Asp Glu Glu Leu
 145 150 155 160
 Arg Ile Leu Asp Ser Leu Ile Phe Phe Glu Asn His Gly Met Val Cys
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 180 185 190
 Gly Leu Lys Glu Tyr Phe Gln Thr Met Asp
 195 200

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 <213> Artificial Sequence

<220>
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<220>
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<210> 97
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<210> 98
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 <212> PRT
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 <223> Made in a lab

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 1 5 10 15
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<210> 99
 <211> 16
 <212> PRT
 <213> Artificial Sequence

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 <223> Made in a lab

<400> 99
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FOE340"CEFHBO

1 5 10 15

<210> 100
 <211> 15
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Made in a lab

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 1 5 10 15

<210> 101
 <211> 20
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Made in a lab

<400> 101
 Thr Glu Ile Val Lys Lys Val Trp Glu Tyr Ile Lys Lys His Asn Cys
 1 5 10 15
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<210> 102
 <211> 20
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Made in a lab

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 Lys Val Trp Glu Tyr Ile Lys Lys His Asn Cys Gln Asp Gln Lys Asn
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<210> 103
 <211> 15
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Made in a lab

<400> 103
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<210> 104
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 <212> PRT

<213> Artificial Sequence

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<223> Made in a lab

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Ala Glu Leu Thr Glu Glu Glu Val Gly Arg Leu Asn Ala Leu Leu Gln
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 Ser Asp Tyr Val
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<210> 105

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

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Leu Gln Ser Asp Tyr Val Val Glu Gly Asp Leu Arg Arg Arg Val Gln
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<210> 106

<211> 20

<212> PRT

<213> Artificial Sequence

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<210> 107

<211> 20

<212> PRT

<213> Artificial Sequence

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<210> 108

<211> 20

<212> PRT

<213> Artificial Sequence

TOC240-240-0400

<220>

<223> Made in a lab

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<210> 109

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

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<210> 110

<211> 1461

<212> DNA

<213> Chlamydia

<400> 110

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<210> 111

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| agagttgata | aaaaaagaag | cggatgctta | tttgttttgt | gagaaaagcg | ggatatatct | 120 | |
| aacgaaaaaa | gaagggtattt | tgattccttc | tgcagggatt | gatgaatcga | atacggacca | 180 | |
| gccttttgtt | ttatatccta | aagatatattt | gggatcgtgt | aatcgcatcg | gagaatggtt | 240 | |
| aaagaattat | tttcgagtga | aagagctagt | cgtaatcatt | acagatagcc | atactactcc | 300 | |
| aatgcggcgt | ggagtactgg | gtatcgggct | gtgttggtat | ggattttctc | cattacacaa | 360 | |
| ctatatagga | tcgctagatt | gtttcggctg | tcccttacag | atgacgcaaa | gtaatcttgt | 420 | |
| agatgcctta | gcagttgcgg | ctgttggttt | tatgggagag | gggaatgagc | aaacaccggt | 480 | |
| agcggtgata | gagcaggcac | ctaatatggt | ctaccattca | tatcctactt | ctcgagaaga | 540 | |
| gtattgttct | ttgcgcatag | atgaaacaga | ggacttatac | ggaccttttt | tgcaagcggt | 600 | |
| tacgtggagt | caagaaaaga | aatgatggag | gtgtttatga | attttttaga | tcagtttagat | 660 | |
| ttaatatttc | aaaataagca | tatgctagaa | cacacgtttt | atgtgaaatg | gtcgaagggg | 720 | |
| gagcttacta | aagagcaatt | acaggcggtat | gccaaagact | attatttaca | tatcaaagcc | 780 | |
| tttccctaaat | atttatctgc | gattcatagt | cgttgcgatg | atttagaggc | gcgtaagtta | 840 | |
| ttgttagata | acttgatgga | tgaagagaac | ggttacccta | atcatattga | tttgtggaag | 900 | |
| cagtttgtgt | ttgctctagg | agttactcca | gaagagttag | aggctcatga | gcctagtgaa | 960 | |
| gcagcaaaaag | cgaaagtagc | tactttcatg | cggtggtgta | caggagattc | tttagctgca | 1020 | |
| ggagtggctg | ctttgtattc | ttatgagagt | caaattccac | gtatcgctag | agagaaaatt | 1080 | |
| cgtggattga | ctgagtactt | tggattttcc | aatcctgaag | actatgcata | tttcacagaa | 1140 | |
| ca | | | | | | 1142 | |

<210> 114
 <211> 976
 <212> DNA
 <213> Chlamydia

<400> 114
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 ccgatgggtt tctccctgtc attgggcctg ttatatggga gtcggagggt cttttccgcg 480
 cttatatttc ttcggtgact gatggggatg gtaagagcca taaagtagga tttctaagaa 540
 ttctacata tagttggcag gacatggaag attttgatcc ttcaggaccg cctccttggg 600
 aagaatttgc taagattatt caagtatttt cttctaatac agaagctttg attatcgacc 660
 aaacgaacaa ccaggtgggt agtgcctttt atctttatgc actgctttcc atgttgacag 720
 accgtccctt agaacttcct aaacatagaa tgattctgac tcaggatgaa gtggttgatg 780
 ctttagattg gtttaaccctg ttggaaaacg tagacacaaa cgtggagtct cgccttgctc 840
 tgggagacaa catggaagga tatactgtgg atctacaggt tgccgagtat ttaaaaagct 900
 ttggacgtca agtattgaat tggtggagta aaggggatat cgagttatca acacctattc 960
 ctcttttttg ttttga 976

<210> 115
 <211> 995
 <212> DNA
 <213> Chlamydia

<400> 115
 ttatcctaga aatttggtgt tcaatatgag cgaaaaaaga aagtctaaca aaattatttg 60
 tatcgaccta gggacgacca actcttgctg ctctgttatg gaaggtggcc aacctaagat 120
 tattgcctct tctgaaggaa ctcgactac tccttctatc gttgctttta aaggtggcga 180
 aactcttggt ggaattcctg caaaacgtca ggcagtaacc aatcctgaaa aaacattggc 240
 ttctactaag cgattcatcg gtagaaaatt ctctgaagtc gaatctgaaa ttaaaacagt 300
 cccctacaaa gttgctccta actcgaaagg agatgcggtc tttgatgtgg aacaaaaact 360
 gtacactcca gaagaaatcg gcgctcagat cctcatgaag atgaaggaaa ctgctgaggc 420
 ttatctcgga gaaacagtaa cggaagcagt cattaccgta ccagcttact ttaacgattc 480
 tcaaagagct tctacaaaag atgctggacg tatcgcagga ttagatgtta aacgcattat 540
 tctgaacca acagcggccg ctcttgctta tgggtattgat aaggaaggag ataaaaaat 600
 cgccgtcttc gacttaggag gaggaacttt cgatatttct atcttgaaa tcggtgacgg 660
 agtttttgaa gttctctcaa ccaacgggga tactcacttg ggaggagacg acttcgacgg 720
 agtcatcatc aactggatgc ttgatgaatt caaaaaacaa gaaggcattg atctaagcaa 780
 agataacatg gctttgcaaa gattgaaaga tgctgctgaa aaagcaaaaa tagaattgtc 840
 tgggtgatcg tctactgaaa tcaatcagcc attcatcact atcgacgcta atggacctaa 900
 acatttggct ttaactctaa ctgcgctca attcgaacac ctagcttctc ctctcattga 960
 gcgaacacaaa caaccttggt ctcaggcttt aaaag 995

<210> 116
 <211> 437
 <212> DNA
 <213> Chlamydia

<400> 116
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 ggaattatcg aaattgcaaa taacaaagcg acagatgttg gaggtggtgc ttacgtaaaa 120
 ggaaccctta cttgtaaaaa ctctcaccgt ctacaatttt tgaaaaactc ttccgataaa 180

caaggtggag gaatctacgg agaagacaac atcacccctat ctaatttgac agggaagact 240
 ctattccaag agaatactgc caaaaaagag ggcggtggac tcttcataaa aggtacagat 300
 aaagctctta caatgacagg actggatagt ttctgtttta ttaataacac atcagaaaaa 360
 catggtggtg gagcctttgt taccaaagaa atctctcaga cttacacctc tgatgtggaa 420
 acaattccag gaatcac 437

<210> 117

<211> 446

<212> DNA

<213> Chlamydia

<400> 117

aagtttacct agaccaaact gaagatgacg aaggaaaagt tgttttatcc agagaaaaag 60
 caacaagaca acgacaatgg gaatacattc ttgctcactg cgaggaaggt tctattgtta 120
 agggacaaat tacccgaaaa gttaagggtg gtttgatcgt agatattggt atggaagcct 180
 tccttccagg atcccaaata gacaataaga agatcaagaa cttagatgat tacgtaggca 240
 aggtttgtga gttcaaaatt ctcaaaatca acgtggatcg tcggaacgtt gttgtatcta 300
 gaagagaact tctcgaagct gaacgcattt ctaagaaagc agagttgatc gagcaaatca 360
 ctatcggtga acgtcgcaaa ggtatcgtaa agaatatcac agatttcgga gtattcttgg 420
 atcttgatgg cattgacggc ctactc 446

<210> 118

<211> 951

<212> DNA

<213> Chlamydia

<400> 118

agtattgcga aatattactg tgagaagcaa tgctgagagc gggttctagta aaagtgaggg 60
 gagagctgtc agaagggatc gctcaggaag cgagacaacg tgtggctgat ttattaggaa 120
 gattccctct ttatcctgaa atcgatctgg aaacgctagt ttagtgggag actctatgcc 180
 tgaaggggaa atgatgcata agttgcaaga tgcatagat agaaagtgtg tggattctcg 240
 tcgtattttc ttctccgaac ctgtaacgga gaaaagtgtc gcagaagcca tcaaaaagct 300
 ttgggtatttg gaactcacca atcctgggca gccaatgtga tttgtcatta atagccctgg 360
 agggctctgt gatgctgggt ttgctgtttg ggaccaaatt aaaatgatct cttctccttt 420
 gactacagtt gttacagggt tagcagcatc tatgggatct gtattgagtt tgtgtgctgt 480
 tccaggaaga cgttttgcta cgcctcatgc gcgcattatg attcaccagc cttctatttg 540
 aggaaccatt actggccaag ccacggactt ggatattcat gctcgtgaaa ttttaaaaac 600
 aaaagcacgc attattgatg tgtatgtcga ggcaactgga caatctccag aggtgataga 660
 gaaagctatc gatcgagata tgtggatgag tgcaaatgaa gcaatggagt ttggactgtt 720
 agatgggatt ctcttctctt ttaacgactt gtagatatct tttatattct ggagcaggaa 780
 acagtttcat tttgggagaa tcgatgcctt ctcttgagga tgttctgttt ttatgccagg 840
 aagagatggg tgatgggttt ttatgtgtag agtcttctga aatagcagat gctaaactca 900
 ctgtttttta tagtgatgga tctatcgcgt ctatgtgcgg gaatgggttg c 951

<210> 119

<211> 953

<212> DNA

<213> Chlamydia

<400> 119

atatcaaagt tgggcaaatg acagagccgc tcaaggacca gcaaataatc cttgggacaa 60
 catcaacacc tgtcgcagcc aaaatgacag cttctgatgg aatatcttta acagtctcca 120
 ataattccatc aaccaatgct tctattacaa ttgggtttgga tgcggaaaaa gcttaccagc 180
 ttattctaga aaagtgggga gatcaaatc ttgggtggaat tgctgatact attgttgata 240
 gtacagtcca agatatttta gacaaaatca caacagaccc ttctctaggt ttgttgaaag 300
 cttttaacaa ctttccaatc actaataaaa ttcaatgcaa cgggttattc actcccagga 360
 acattgaaac tttattagga ggaactgaaa taggaaaatt cacagtcaca cccaaaagct 420

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ctgggagcat gttcttagtc tcagcagata ttattgcata aagaatggaa ggcggcggtg 480
ttctagcttt ggtacgagaa ggtgattcta agccctaogc gattagttat ggatactcat 540
caggcggtcc taatttatgt agtctaagaa ccagaattat taatacagga ttgactccga 600
caacgtattc attacgtgta ggcgggttag aaagcgggtg ggtatgggtt aatgcccttt 660
ctaattggcaa tgatatttta ggaataacaa atacttctaa tgtatctttt ttggaggtaa 720
tacctcaaac aaacgcttaa acaattttta ttggattttt cttataggtt ttatatttag 780
agaaaaaagt tcgaattacg gggtttgta tgcaaaataa aagcaaagtg agggacgatt 840
ttattaaaat tgttaaagat tcttggtatc ggtctgcgat tccgactcgt ccaacatcaa 900
tacaacctat taatttcccc tcgtcaaaaa taaggttatc aagtgagaaa tca 953

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<210> 120
<211> 897
<212> DNA
<213> Chlamydia

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<220>
<221> misc_feature
<222> (1)...(897)
<223> n = A, C, T or G

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<400> 120
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gttaagggtcg ccaagtctgc tgccgaattg accgcaaata ttttggaaca agctggaggc 180
gcgggctctt ccgcacacat tacagcttcc caagtgtcca aaggattagg ggatgcgaga 240
actgttctcg ctttagggaa tgcctttaac ggagcggtgc caggaacagt tcaaagtgcg 300
caaagcttct tctcttacat gaaagctgct agtcagaaac cgcaagaagg ggatgagggg 360
ctcgtagcag atcttttgtgt gtctcataag cgcanagcgg ctgcggctgt ctgtagcttc 420
atcggaggaa ttacctacct ccgcacattc ggagctatcc gtccgattct gtttgtcaac 480
aaaatgctgg cgcaaccgtt tctttcttcc caaattaaag caaatatggg atcttctgtt 540
agctatatta tggcggctaa ccattgcagc tttgtggtgg gttctggact cgctatcagt 600
gcggaaagag cagattgcga agcccgctgc gctcgattg cgagagaaga gtcgtcactc 660
gaattgtcgg gagaggaaaa tgcttgcgag aggagagtcg ctggagagaa agccaagacg 720
ttcacgcgca tcaagtatgc actcctcact atgctcgaga agtttttgga atgcgttgcc 780
gacgttttca aattggtgcc gttgcctatt acaatgggta ttcgtgcaat tgtggctgcg 840
ggatgtacgt tcacttctgc agttattgga ttgtggactt tctgcgccag agcataa 897

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<210> 121
<211> 298
<212> PRT
<213> Chlamydia

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<400> 121
Met Ala Ser Ile Cys Gly Arg Leu Gly Ser Gly Thr Gly Asn Ala Leu
1      5      10      15
Lys Ala Phe Phe Thr Gln Pro Ser Asn Lys Met Ala Arg Val Val Asn
20     25     30
Lys Thr Lys Gly Met Asp Lys Thr Val Lys Val Ala Lys Ser Ala Ala
35     40     45
Glu Leu Thr Ala Asn Ile Leu Glu Gln Ala Gly Gly Ala Gly Ser Ser
50     55     60
Ala His Ile Thr Ala Ser Gln Val Ser Lys Gly Leu Gly Asp Ala Arg
65     70     75     80
Thr Val Leu Ala Leu Gly Asn Ala Phe Asn Gly Ala Leu Pro Gly Thr
85     90     95

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Val Gln Ser Ala Gln Ser Phe Phe Ser Tyr Met Lys Ala Ala Ser Gln
 100 105 110
 Lys Pro Gln Glu Gly Asp Glu Gly Leu Val Ala Asp Leu Cys Val Ser
 115 120 125
 His Lys Arg Arg Ala Ala Ala Val Cys Ser Phe Ile Gly Gly Ile
 130 135 140
 Thr Tyr Leu Ala Thr Phe Gly Ala Ile Arg Pro Ile Leu Phe Val Asn
 145 150 155 160
 Lys Met Leu Ala Gln Pro Phe Leu Ser Ser Gln Ile Lys Ala Asn Met
 165 170 175
 Gly Ser Ser Val Ser Tyr Ile Met Ala Ala Asn His Ala Ala Phe Val
 180 185 190
 Val Gly Ser Gly Leu Ala Ile Ser Ala Glu Arg Ala Asp Cys Glu Ala
 195 200 205
 Arg Cys Ala Arg Ile Ala Arg Glu Glu Ser Ser Leu Glu Leu Ser Gly
 210 215 220
 Glu Glu Asn Ala Cys Glu Arg Arg Val Ala Gly Glu Lys Ala Lys Thr
 225 230 235 240
 Phe Thr Arg Ile Lys Tyr Ala Leu Leu Thr Met Leu Glu Lys Phe Leu
 245 250 255
 Glu Cys Val Ala Asp Val Phe Lys Leu Val Pro Leu Pro Ile Thr Met
 260 265 270
 Gly Ile Arg Ala Ile Val Ala Ala Gly Cys Thr Phe Thr Ser Ala Val
 275 280 285
 Ile Gly Leu Trp Thr Phe Cys Ala Arg Ala
 290 295

<210> 122
 <211> 897
 <212> DNA
 <213> Chlamydia

<400> 122
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 acacagccca gcaataaaat ggcaagggtg gtaaataaga cgaagggaat ggataagact 120
 gttaagggtcg ccaagtctgc tgccgaattg accgcaaata ttttggaaca agctggaggc 180
 gcgggctctt ccgcacacat tacagcttcc caagtgtcca aaggattagg ggatacgaga 240
 actgttgctg ctttagggaa tgcctttaac ggagcgttgc caggaacagt tcaaagtgcg 300
 caaagcttct tctctcacat gaaagctgct agtcagaaaa cgcaagaagg ggatgagggg 360
 ctcacagcag atctttgtgt gtctcataag cgcagagcgg ctgcggtgt ctgtggcttc 420
 atcggaggaa ttacctacct cgcgacattc ggagttatcc gtccgattct gtttgtcaac 480
 aaaatgctgg tgaaccggtt tctttcttcc caaactaaag caaatatggg atcttctgtt 540
 agctatatta tggcggctaa ccatgcagcg tctgtggtgg gtgctggact cgctatcagt 600
 gcggaaagag cagattgcga agcccgctgc gctcgtattg cgagagaaga gtcgttactc 660
 gaagtgtcgg gagaggaaaa tgcttgcgag aagagagtcg ctggagagaa agccaagacg 720
 ttcacgcgca tcaagtatgc actcctcact atgctcgaga agtttttggg atgcgttgcc 780
 gacgttttca aattggtgcc gctgcctatt acaatgggta ttcgtgcgat tgtggctgct 840
 ggatgtacgt tcaattctgc aattattgga ttgtgcactt tctgcgccag agcataa 897

<210> 123
 <211> 298
 <212> PRT
 <213> Chlamydia

<400> 123
 Met Ala Ser Ile Cys Gly Arg Leu Gly Ser Gly Thr Gly Asn Ala Leu
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Lys Ala Phe Phe Thr Gln Pro Ser Asn Lys Met Ala Arg Val Val Asn
 20 25 30
 Lys Thr Lys Gly Met Asp Lys Thr Val Lys Val Ala Lys Ser Ala Ala
 35 40 45
 Glu Leu Thr Ala Asn Ile Leu Glu Gln Ala Gly Gly Ala Gly Ser Ser
 50 55 60
 Ala His Ile Thr Ala Ser Gln Val Ser Lys Gly Leu Gly Asp Thr Arg
 65 70 75 80
 Thr Val Val Ala Leu Gly Asn Ala Phe Asn Gly Ala Leu Pro Gly Thr
 85 90 95
 Val Gln Ser Ala Gln Ser Phe Phe Ser His Met Lys Ala Ala Ser Gln
 100 105 110
 Lys Thr Gln Glu Gly Asp Glu Gly Leu Thr Ala Asp Leu Cys Val Ser
 115 120 125
 His Lys Arg Arg Ala Ala Ala Val Cys Gly Phe Ile Gly Gly Ile
 130 135 140
 Thr Tyr Leu Ala Thr Phe Gly Val Ile Arg Pro Ile Leu Phe Val Asn
 145 150 155 160
 Lys Met Leu Val Asn Pro Phe Leu Ser Ser Gln Thr Lys Ala Asn Met
 165 170 175
 Gly Ser Ser Val Ser Tyr Ile Met Ala Ala Asn His Ala Ala Ser Val
 180 185 190
 Val Gly Ala Gly Leu Ala Ile Ser Ala Glu Arg Ala Asp Cys Glu Ala
 195 200 205
 Arg Cys Ala Arg Ile Ala Arg Glu Glu Ser Leu Leu Glu Val Ser Gly
 210 215 220
 Glu Glu Asn Ala Cys Glu Lys Arg Val Ala Gly Glu Lys Ala Lys Thr
 225 230 235 240
 Phe Thr Arg Ile Lys Tyr Ala Leu Leu Thr Met Leu Glu Lys Phe Leu
 245 250 255
 Glu Cys Val Ala Asp Val Phe Lys Leu Val Pro Leu Pro Ile Thr Met
 260 265 270
 Gly Ile Arg Ala Ile Val Ala Ala Gly Cys Thr Phe Thr Ser Ala Ile
 275 280 285
 Ile Gly Leu Cys Thr Phe Cys Ala Arg Ala
 290 295

<210> 124

<211> 897

<212> DNA

<213> Chlamydia

<400> 124

| | | | | | | |
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| atggcttcta | tatgcggacg | tttaggggtct | ggtacagggga | atgctctaaa | agcttttttt | 60 |
| acacagccca | acaataaaat | ggcaagggta | gtaaataaga | cgaaggggaat | ggataagact | 120 |
| attaaggttg | ccaagtctgc | tgccgaattg | accgcaaata | ttttggaaca | agctggaggc | 180 |
| gcgggctctt | ccgcacacat | tacagcttcc | caagtgtcca | aaggattagg | ggatgcgaga | 240 |
| actgttgctg | cttttagggaa | tgcctttaac | ggagcgttgc | caggaacagt | tcaaagtgcg | 300 |
| caaagcttct | tctctcacat | gaaagctgct | agtcagaaaa | cgcaagaagg | ggatgagggg | 360 |
| ctcacagcag | atctttgtgt | gtctcataag | cgcagagcgg | ctgcggctgt | ctgtagcatc | 420 |
| atcggaggaa | ttacctacct | cgcgacattc | ggagctatcc | gtccgattct | gtttgtcaac | 480 |
| aaaatgctgg | caaaaccggt | tctttcttcc | caaactaaag | caaatatggg | atcttctggt | 540 |
| agctatatatta | tggcggctaa | ccatgcagcg | tctgtggtgg | gtgctggact | cgctatcagt | 600 |
| gcggaagag | cagattgcga | agcccgtgc | gctcgtattg | cgagagaaga | gtcgttactc | 660 |
| gaagtgcg | gagaggaaaa | tgcttgcgag | aagaaagtcg | ctggagagaa | agccaagacg | 720 |
| ttcacgcgca | tcaagtatgc | actcctcact | atgctcgaga | agtttttgga | atgcgttgcc | 780 |
| gacgttttca | aattgggtgcc | gctgcctatt | acaatgggta | ttcgtgcgat | tgtggctgct | 840 |

ggatgtacgt tcacttctgc aattattgga ttgtgcactt tctgcgccag agcataa

897

<210> 125

<211> 298

<212> PRT

<213> Chlamydia

<400> 125

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 Lys Ala Phe Phe Thr Gln Pro Asn Asn Lys Met Ala Arg Val Val Asn
 20 25 30
 Lys Thr Lys Gly Met Asp Lys Thr Ile Lys Val Ala Lys Ser Ala Ala
 35 40 45
 Glu Leu Thr Ala Asn Ile Leu Gln Ala Gly Gly Ala Gly Ser Ser
 50 55 60
 Ala His Ile Thr Ala Ser Gln Val Ser Lys Gly Leu Gly Asp Ala Arg
 65 70 75 80
 Thr Val Val Ala Leu Gly Asn Ala Phe Asn Gly Ala Leu Pro Gly Thr
 85 90 95
 Val Gln Ser Ala Gln Ser Phe Phe Ser His Met Lys Ala Ala Ser Gln
 100 105 110
 Lys Thr Gln Glu Gly Asp Glu Gly Leu Thr Ala Asp Leu Cys Val Ser
 115 120 125
 His Lys Arg Arg Ala Ala Ala Val Cys Ser Ile Ile Gly Gly Ile
 130 135 140
 Thr Tyr Leu Ala Thr Phe Gly Ala Ile Arg Pro Ile Leu Phe Val Asn
 145 150 155 160
 Lys Met Leu Ala Lys Pro Phe Leu Ser Ser Gln Thr Lys Ala Asn Met
 165 170 175
 Gly Ser Ser Val Ser Tyr Ile Met Ala Ala Asn His Ala Ala Ser Val
 180 185 190
 Val Gly Ala Gly Leu Ala Ile Ser Ala Glu Arg Ala Asp Cys Glu Ala
 195 200 205
 Arg Cys Ala Arg Ile Ala Arg Glu Glu Ser Leu Leu Glu Val Pro Gly
 210 215 220
 Glu Glu Asn Ala Cys Glu Lys Lys Val Ala Gly Glu Lys Ala Lys Thr
 225 230 235 240
 Phe Thr Arg Ile Lys Tyr Ala Leu Leu Thr Met Leu Glu Lys Phe Leu
 245 250 255
 Glu Cys Val Ala Asp Val Phe Lys Leu Val Pro Leu Pro Ile Thr Met
 260 265 270
 Gly Ile Arg Ala Ile Val Ala Ala Gly Cys Thr Phe Thr Ser Ala Ile
 275 280 285
 Ile Gly Leu Cys Thr Phe Cys Ala Arg Ala
 290 295

<210> 126

<211> 897

<212> DNA

<213> Chlamydia

<400> 126

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 attaaggttg ccaagtctgc tgccgaattg accgcaaata ttttgaaca agctggaggc 180
 gcgggctctt ccgcacacat tacagcttcc caagtgtcca aaggattagg ggatgcgaga 240

<210> 127
<211> 298
<212> PRT
<213> Chlamydia

| | | | | | | | | | | | | | | | |
|---------|-----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|---------|---------|---------|---------|
| | <400> 127 | | | | | | | | | | | | | | |
| Met 1 | Ala | Ser | Ile | Cys 5 | Gly | Arg | Leu | Gly | Ser 10 | Gly | Thr | Gly | Asn 15 | Ala | Leu |
| Lys | Ala | Phe | Phe 20 | Thr | Gln | Pro | Asn | Asn 25 | Lys | Met | Ala | Arg | Val 30 | Val | Asn |
| Lys | Thr | Lys 35 | Gly | Met | Asp | Lys | Thr 40 | Ile | Lys | Val | Ala | Lys 45 | Ser | Ala | Ala |
| Glu | Leu 50 | Thr | Ala | Asn | Ile | Leu 55 | Glu | Gln | Ala | Gly | Gly 60 | Ala | Gly | Ser | Ser |
| Ala 65 | His | Ile | Thr | Ala | Ser 70 | Gln | Val | Ser | Lys | Gly 75 | Leu | Gly | Asp | Ala | Arg 80 |
| Thr | Val | Val | Ala | Leu 85 | Gly | Asn | Ala | Phe | Asn 90 | Gly | Ala | Leu | Pro | Gly 95 | Thr |
| Val | Gln | Ser | Ala 100 | Gln | Ser | Phe | Phe | Ser | His 105 | Met | Lys | Ala | Ala | Ser | Gln |
| Lys | Thr | Gln 115 | Glu | Gly | Asp | Glu | Gly 120 | Leu | Thr | Ala | Asp | Leu | Cys 125 | Val | Ser |
| His | Lys 130 | Arg | Arg | Ala | Ala | Ala 135 | Ala | Val | Cys | Ser | Ile | Ile | Gly 140 | Gly | Ile |
| Thr 145 | Tyr | Leu | Ala | Thr | Phe 150 | Gly | Ala | Ile | Arg | Pro 155 | Ile | Leu | Phe | Val | Asn 160 |
| Lys | Met | Leu | Ala | Lys 165 | Pro | Phe | Leu | Ser | Ser | Gln 170 | Thr | Lys | Ala | Asn 175 | Met |
| Gly | Ser | Ser | Val 180 | Ser | Tyr | Ile | Met | Ala 185 | Ala | Asn | His | Ala | Ala 190 | Ser | Val |
| Val | Gly | Ala 195 | Gly | Leu | Ala | Ile | Ser | Ala 200 | Glu | Arg | Ala | Asp 205 | Cys | Glu | Ala |
| Arg | Cys 210 | Ala | Arg | Ile | Ala | Arg 215 | Glu | Glu | Ser | Leu | Leu | Glu | Val | Pro | Gly |
| Glu 225 | Glu | Asn | Ala | Cys | Glu 230 | Lys | Lys | Val | Ala | Gly 235 | Glu | Lys | Ala | Lys | Thr 240 |
| Phe | Thr | Arg | Ile | Lys 245 | Tyr | Ala | Leu | Leu | Thr 250 | Met | Leu | Glu | Lys | Phe 255 | Leu |
| Glu | Cys | Val | Ala 260 | Asp | Val | Phe | Lys | Leu 265 | Val | Pro | Leu | Pro | Ile 270 | Thr | Met |
| Gly | Ile | Arg 275 | Ala | Ile | Val | Ala | Ala 280 | Gly | Cys | Thr | Phe | Thr 285 | Ser | Ala | Ile |
| Ile | Gly 290 | Leu | Cys | Thr | Phe | Cys 295 | Ala | Arg | Ala | | | | | | |

<400> 128

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<210> 129
<211> 298
<212> PRT
<213> Chlamydia
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<400> 129

| | | | | | | | | | | | | | | | |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Met 1 | Ala | Ser | Ile | Cys 5 | Gly | Arg | Leu | Gly | Ser 10 | Gly | Thr | Gly | Asn 15 | Ala | Leu |
| Lys | Ala | Phe | Phe 20 | Thr | Gln | Pro | Ser | Asn 25 | Lys | Met | Ala | Arg | Val 30 | Val | Asn |
| Lys | Thr | Lys 35 | Gly | Met | Asp | Lys | Thr 40 | Val | Lys | Val | Ala | Lys | Ser 45 | Ala | Ala |
| Glu | Leu 50 | Thr | Ala | Asn | Ile | Leu 55 | Glu | Gln | Ala | Gly | Gly 60 | Ala | Gly | Ser | Ser |
| Ala 65 | His | Ile | Thr | Ala | Ser 70 | Gln | Val | Ser | Lys | Gly 75 | Leu | Gly | Asp | Thr | Arg 80 |
| Thr | Val | Val | Ala | Leu 85 | Gly | Asn | Ala | Phe | Asn 90 | Gly | Ala | Leu | Pro 95 | Gly | Thr |
| Val | Gln | Ser | Ala 100 | Gln | Ser | Phe | Phe | Ser 105 | His | Met | Lys | Ala | Ala 110 | Ser | Gln |
| Lys | Thr | Gln 115 | Glu | Gly | Asp | Glu | Gly 120 | Leu | Thr | Ala | Asp | Leu | Cys 125 | Val | Ser |
| His | Lys 130 | Arg | Arg | Ala | Ala | Ala 135 | Ala | Val | Cys | Gly | Phe 140 | Ile | Gly | Gly | Ile |
| Thr 145 | Tyr | Leu | Ala | Thr | Phe 150 | Gly | Val | Ile | Arg | Pro 155 | Ile | Leu | Phe | Val | Asn 160 |
| Lys | Met | Leu | Val | Asn 165 | Pro | Phe | Leu | Ser | Ser 170 | Gln | Thr | Lys | Ala | Asn 175 | Met |
| Gly | Ser | Ser | Val 180 | Ser | Tyr | Ile | Met | Ala 185 | Ala | Asn | His | Ala | Ala 190 | Ser | Val |
| Val | Gly 195 | Ala | Gly | Leu | Ala | Ile | Ser 200 | Ala | Glu | Arg | Ala | Asp 205 | Cys | Glu | Ala |
| Arg | Cys 210 | Ala | Arg | Ile | Ala | Arg 215 | Glu | Glu | Ser | Leu | Leu | Glu | Val | Ser | Gly |
| Glu | Glu | Asn | Ala | Cys | Glu | Lys | Arg | Val | Ala | Gly | Glu | Lys | Ala | Lys | Thr |

225 230 235 240
 Phe Thr Arg Ile Lys Tyr Ala Leu Leu Thr Met Leu Glu Lys Phe Leu
 245 250 255
 Glu Cys Val Ala Asp Val Phe Lys Leu Val Pro Leu Pro Ile Thr Met
 260 265 270
 Gly Ile Arg Ala Ile Val Ala Ala Gly Cys Thr Phe Thr Ser Ala Ile
 275 280 285
 Ile Gly Leu Cys Thr Phe Cys Ala Arg Ala
 290 295

<210> 130
 <211> 897
 <212> DNA
 <213> Chlamydia

<400> 130
 atggctgcta tatgtggacg tttagggtct ggtacagga atgctctaaa agcttttttt 60
 acacagccca gcaataaaat ggcaagggtg gtaaataaga cgaagggaat ggataagact 120
 gttaaggtcg ccaagtctgc tgccgaattg accgcaaata ttttggaaca agctggaggc 180
 gcgggctctt ccgcacacat tacagcttcc caagtgtcca aaggattagg ggatgcgaga 240
 actgttctcg ctttagggaa tgcccttaac ggagcgttgc caggaacagt tcaaagtgcg 300
 caaagcttct tctcttacat gaaagctgct agtcagaaac cgcaagaagg ggatgagggg 360
 ctgtagcag atcttttgtgt gtctcataag cgcagagcgg ctgcggtgt ctgtagcttc 420
 atcggaggaa ttacctacct cgcgacattc ggagctatcc gtccgattct gtttgtcaac 480
 aaaatgctgg cgcaaccgtt tctttcttcc caaactaaag caaatatggg atcttctgtt 540
 agctatatta tggcggctaa ccatgcagcg tttgtggtgg gttctggact cgctatcagt 600
 gcggaaagag cagattgcga agcccgtgc gctcgtattg cgagagaaga gtcgtcactc 660
 gaattgtcgg gagaggaaaa tgcttgcgag aggggagtcg ctggagagaa agccaagacg 720
 ttcacgcgca tcaagtatgc actcctcact atgctcgaga agtttttgga atgcgttgcc 780
 gacgttttca aattggtgcc gttgcctatt acaatgggta ttcgtgcaat tgtggctgcg 840
 ggatgtacgt tcaattctgc agttattgga ttgtggactt tctgcaacag agtataa 897

<210> 131
 <211> 298
 <212> PRT
 <213> Chlamydia

<400> 131
 Met Ala Ala Ile Cys Gly Arg Leu Gly Ser Gly Thr Gly Asn Ala Leu
 1 5 10 15
 Lys Ala Phe Phe Thr Gln Pro Ser Asn Lys Met Ala Arg Val Val Asn
 20 25 30
 Lys Thr Lys Gly Met Asp Lys Thr Val Lys Val Ala Lys Ser Ala Ala
 35 40 45
 Glu Leu Thr Ala Asn Ile Leu Glu Gln Ala Gly Gly Ala Gly Ser Ser
 50 55 60
 Ala His Ile Thr Ala Ser Gln Val Ser Lys Gly Leu Gly Asp Ala Arg
 65 70 75 80
 Thr Val Leu Ala Leu Gly Asn Ala Phe Asn Gly Ala Leu Pro Gly Thr
 85 90 95
 Val Gln Ser Ala Gln Ser Phe Phe Ser Tyr Met Lys Ala Ala Ser Gln
 100 105 110
 Lys Pro Gln Glu Gly Asp Glu Gly Leu Val Ala Asp Leu Cys Val Ser
 115 120 125
 His Lys Arg Arg Ala Ala Ala Val Cys Ser Phe Ile Gly Gly Ile
 130 135 140
 Thr Tyr Leu Ala Thr Phe Gly Ala Ile Arg Pro Ile Leu Phe Val Asn

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145 150 155 160
 Lys Met Leu Ala Gln Pro Phe Leu Ser Ser Gln Thr Lys Ala Asn Met
 165 170 175
 Gly Ser Ser Val Ser Tyr Ile Met Ala Ala Asn His Ala Ala Phe Val
 180 185 190
 Val Gly Ser Gly Leu Ala Ile Ser Ala Glu Arg Ala Asp Cys Glu Ala
 195 200 205
 Arg Cys Ala Arg Ile Ala Arg Glu Glu Ser Ser Leu Glu Leu Ser Gly
 210 215 220
 Glu Glu Asn Ala Cys Glu Arg Gly Val Ala Gly Glu Lys Ala Lys Thr
 225 230 235 240
 Phe Thr Arg Ile Lys Tyr Ala Leu Leu Thr Met Leu Glu Lys Phe Leu
 245 250 255
 Glu Cys Val Ala Asp Val Phe Lys Leu Val Pro Leu Pro Ile Thr Met
 260 265 270
 Gly Ile Arg Ala Ile Val Ala Ala Gly Cys Thr Phe Thr Ser Ala Val
 275 280 285
 Ile Gly Leu Trp Thr Phe Cys Asn Arg Val
 290 295

<210> 132
 <211> 897
 <212> DNA
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<400> 132
 atggctgcta tatgcggacg tttaggggtct ggtacagggga atgctctaaa agcttttttt 60
 acacagccca gcaataaaat ggcaagggtg gtaaataaga cgaagggaat ggataagact 120
 gttaagggtcg ccaagtctgc tgccgaattg accgcaaata ttttgaaca agctggaggc 180
 gcgggctctt ccgcacacat tacagcttcc caagtgtcca aaggattagg ggatgcgaga 240
 actgttctcg ctttagggaa tgcctttaac ggagcgttgc caggaacagt tcaaagtgcg 300
 caaagcttct tctcttacct gaaagctgct agtcagaaac cgcaagaagg ggatgagggg 360
 ctgtagcag atctttgtgt gtctcataag cgcagagcgg ctgcggtgt ctgtagcttc 420
 atcgaggaa ttacctacct cgcgacattc ggagctatcc gtccgattct gtttgtcaac 480
 aaaatgctgg cgcaaccgtt tctttcttcc caaactaaag caaatatggg atcttctgtt 540
 agctatatta tggcggctaa ccatgcagcg tttgtggtgg gttctggact cgctatcagt 600
 gcggaagag cagattgcga agcccgctgc gctcgtattg cgagagaaga gtcgtcactc 660
 gaattgtcgg gagaggaaaa tgcttgtgag aggagagtcg ctggagagaa agccaagacg 720
 ttcacgcgca tcaagtatgc actcctcact atgctcgaga agtttttgga atgcgttgcc 780
 gacgttttca aattggtgcc gttgcctatt acaatgggta ttcgtgcaat tgtggctgcg 840
 ggatgtacgt tcacttctgc agttattgga ttgtggactt tctgcaacag agtataa 897

<210> 133
 <211> 298
 <212> PRT
 <213> Chlamydia

<400> 133
 Met Ala Ala Ile Cys Gly Arg Leu Gly Ser Gly Thr Gly Asn Ala Leu
 1 5 10 15
 Lys Ala Phe Phe Thr Gln Pro Ser Asn Lys Met Ala Arg Val Val Asn
 20 25 30
 Lys Thr Lys Gly Met Asp Lys Thr Val Lys Val Ala Lys Ser Ala Ala
 35 40 45
 Glu Leu Thr Ala Asn Ile Leu Glu Gln Ala Gly Gly Ala Gly Ser Ser
 50 55 60
 Ala His Ile Thr Ala Ser Gln Val Ser Lys Gly Leu Gly Asp Ala Arg

65 70 75 80
 Thr Val Leu Ala Leu Gly Asn Ala Phe Asn Gly Ala Leu Pro Gly Thr
 85 90 95
 Val Gln Ser Ala Gln Ser Phe Phe Ser Tyr Met Lys Ala Ala Ser Gln
 100 105 110
 Lys Pro Gln Glu Gly Asp Glu Gly Leu Val Ala Asp Leu Cys Val Ser
 115 120 125
 His Lys Arg Arg Ala Ala Ala Val Cys Ser Phe Ile Gly Gly Ile
 130 135 140
 Thr Tyr Leu Ala Thr Phe Gly Ala Ile Arg Pro Ile Leu Phe Val Asn
 145 150 155 160
 Lys Met Leu Ala Gln Pro Phe Leu Ser Ser Gln Thr Lys Ala Asn Met
 165 170 175
 Gly Ser Ser Val Ser Tyr Ile Met Ala Ala Asn His Ala Ala Phe Val
 180 185 190
 Val Gly Ser Gly Leu Ala Ile Ser Ala Glu Arg Ala Asp Cys Glu Ala
 195 200 205
 Arg Cys Ala Arg Ile Ala Arg Glu Glu Ser Ser Leu Glu Leu Ser Gly
 210 215 220
 Glu Glu Asn Ala Cys Glu Arg Arg Val Ala Gly Glu Lys Ala Lys Thr
 225 230 235 240
 Phe Thr Arg Ile Lys Tyr Ala Leu Leu Thr Met Leu Glu Lys Phe Leu
 245 250 255
 Glu Cys Val Ala Asp Val Phe Lys Leu Val Pro Leu Pro Ile Thr Met
 260 265 270
 Gly Ile Arg Ala Ile Val Ala Ala Gly Cys Thr Phe Thr Ser Ala Val
 275 280 285
 Ile Gly Leu Trp Thr Phe Cys Asn Arg Val
 290 295

<210> 134
 <211> 897
 <212> DNA
 <213> Chlamydia

<400> 134

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| atggcttcta | tatgcggacg | tttaggggtct | ggtacagggga | atgctctaaa | agcttttttt | 60 |
| acacagccca | acaataaaat | ggcaagggtta | gtaaataaga | cgaagggaat | ggataagact | 120 |
| attaagggtt | ccaagtctgc | tgccgaattg | accgcaaata | ttttggaaca | agctggaggc | 180 |
| gcgggctctt | ccgcacacat | tacagcttcc | caagtgtcca | aaggattagg | ggatgcgaga | 240 |
| actgtttgtg | ctttagggaa | tgcttttaac | ggagcgttgc | caggaacagt | tcaaagtgcg | 300 |
| caaagcttct | tctctcacat | gaaagctgct | agtcagaaaa | cgcaagaagg | ggatgagggg | 360 |
| ctcacagcag | atctttgtgt | gtctcataag | cgcagagcgg | ctgcggctgt | ctgtagcatc | 420 |
| atcggaggaa | ttacctacct | cgcgacattc | ggagctatcc | gtccgattct | gtttgtcaac | 480 |
| aaaatgctgg | caaaaccggt | tctttcttcc | caaactaaag | caaatatggg | atcttctggt | 540 |
| agctatatta | tggcggctaa | ccatgcagcg | tctgtggtgg | gtgctggact | cgctatcagt | 600 |
| gcggaaagag | cagattgcga | agcccgtctg | gctcgtattg | cgagagaaga | gtcgttactc | 660 |
| gaaatgccgg | gagaggaaaa | tgcttgcgag | aagaaagtcg | ctggagagaa | agccaagacg | 720 |
| ttcacgcgca | tcaagtatgc | actcctcact | atgctcgaga | agtttttgga | atgcgttgcc | 780 |
| gacgttttca | aattgggtgcc | gctgcctatt | acaatgggta | ttcgtgcgat | tgtggctgct | 840 |
| ggatgtacgt | tcaattctgc | aattattgga | ttgtgcactt | tctgcgccag | agcataa | 897 |

<210> 135
 <211> 298
 <212> PRT
 <213> Chlamydia

<400> 135
 Met Ala Ser Ile Cys Gly Arg Leu Gly Ser Gly Thr Gly Asn Ala Leu
 1 5 10 15
 Lys Ala Phe Phe Thr Gln Pro Asn Asn Lys Met Ala Arg Val Val Asn
 20 25 30
 Lys Thr Lys Gly Met Asp Lys Thr Ile Lys Val Ala Lys Ser Ala Ala
 35 40 45
 Glu Leu Thr Ala Asn Ile Leu Glu Gln Ala Gly Gly Ala Gly Ser Ser
 50 55 60
 Ala His Ile Thr Ala Ser Gln Val Ser Lys Gly Leu Gly Asp Ala Arg
 65 70 75 80
 Thr Val Val Ala Leu Gly Asn Ala Phe Asn Gly Ala Leu Pro Gly Thr
 85 90 95
 Val Gln Ser Ala Gln Ser Phe Phe Ser His Met Lys Ala Ala Ser Gln
 100 105 110
 Lys Thr Gln Glu Gly Asp Glu Gly Leu Thr Ala Asp Leu Cys Val Ser
 115 120 125
 His Lys Arg Arg Ala Ala Ala Val Cys Ser Ile Ile Gly Gly Ile
 130 135 140
 Thr Tyr Leu Ala Thr Phe Gly Ala Ile Arg Pro Ile Leu Phe Val Asn
 145 150 155 160
 Lys Met Leu Ala Lys Pro Phe Leu Ser Ser Gln Thr Lys Ala Asn Met
 165 170 175
 Gly Ser Ser Val Ser Tyr Ile Met Ala Ala Asn His Ala Ala Ser Val
 180 185 190
 Val Gly Ala Gly Leu Ala Ile Ser Ala Glu Arg Ala Asp Cys Glu Ala
 195 200 205
 Arg Cys Ala Arg Ile Ala Arg Glu Glu Ser Leu Leu Glu Met Pro Gly
 210 215 220
 Glu Glu Asn Ala Cys Glu Lys Lys Val Ala Gly Glu Lys Ala Lys Thr
 225 230 235 240
 Phe Thr Arg Ile Lys Tyr Ala Leu Leu Thr Met Leu Glu Lys Phe Leu
 245 250 255
 Glu Cys Val Ala Asp Val Phe Lys Leu Val Pro Leu Pro Ile Thr Met
 260 265 270
 Gly Ile Arg Ala Ile Val Ala Ala Gly Cys Thr Phe Thr Ser Ala Ile
 275 280 285
 Ile Gly Leu Cys Thr Phe Cys Ala Arg Ala
 290 295

<210> 136

<211> 882

<212> DNA

<213> Chlamydia

<400> 136

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| atggcttctg | tatgtgggcg | attaagtgtc | ggggtgggga | acagatttaa | cgcatttttc | 60 |
| acgcgtcccg | gtaacaagct | atcacggttt | gtaaatagcg | caaaaggatt | agacagatca | 120 |
| ataaagggtg | ggaagtctgc | tgctgaatta | acggcgagta | ttttagagca | aactgggggg | 180 |
| gcagggactg | atgcacatgt | tacggcgggc | aagggtgtcta | aagcacttgg | ggacgcgcga | 240 |
| acagtaatgg | ctctagggaa | tgtcttcaat | gggtctgtgc | cagcaaccat | tcaaagtgcg | 300 |
| cgaagctgtc | tcgcccattt | acgagcggcc | ggcaaagaag | aagaaacatg | ctccaagggtg | 360 |
| aaagatctct | gtgtttctca | tagacgaaga | gctgcggtcg | aggcttgtaa | tgttattgga | 420 |
| ggagcaactt | atattacaac | tttcggagcg | attcgctccga | cattactcgt | taacaagctt | 480 |
| cttgccaaac | catttcctttc | ctcccaagcc | aaagaagggt | tgggagcttc | tggttggttat | 540 |
| atcatggcag | cgaaccatgc | ggcatctgtg | cttgggtctg | ctttaagtat | tagcgcagaa | 600 |
| agagcagact | gtgaagagcg | gtgtgatcgc | attcgatgta | gtgaggatgg | tgaaatttgc | 660 |

gaaggcaata aattaacagc tatttcggaa gagaaggcta gatcatggac tctcattaag 720
 tacagattcc ttactatgat agaaaaacta ttgagatgg tggcggatat cttcaagtta 780
 attcctttgc caatttcgca tggaattcgt gctattgttg ctgcgggatg tacgttgact 840
 tctgcagtta ttggcttagg tactttttgg tctagagcat aa 882

<210> 137
 <211> 293
 <212> PRT
 <213> Chlamydia

<400> 137
 Met Ala Ser Val Cys Gly Arg Leu Ser Ala Gly Val Gly Asn Arg Phe
 1 5 10 15
 Asn Ala Phe Phe Thr Arg Pro Gly Asn Lys Leu Ser Arg Phe Val Asn
 20 25 30
 Ser Ala Lys Gly Leu Asp Arg Ser Ile Lys Val Gly Lys Ser Ala Ala
 35 40 45
 Glu Leu Thr Ala Ser Ile Leu Glu Gln Thr Gly Gly Ala Gly Thr Asp
 50 55 60
 Ala His Val Thr Ala Ala Lys Val Ser Lys Ala Leu Gly Asp Ala Arg
 65 70 75 80
 Thr Val Met Ala Leu Gly Asn Val Phe Asn Gly Ser Val Pro Ala Thr
 85 90 95
 Ile Gln Ser Ala Arg Ser Cys Leu Ala His Leu Arg Ala Ala Gly Lys
 100 105 110
 Glu Glu Glu Thr Cys Ser Lys Val Lys Asp Leu Cys Val Ser His Arg
 115 120 125
 Arg Arg Ala Ala Ala Glu Ala Cys Asn Val Ile Gly Gly Ala Thr Tyr
 130 135 140
 Ile Thr Thr Phe Gly Ala Ile Arg Pro Thr Leu Leu Val Asn Lys Leu
 145 150 155 160
 Leu Ala Lys Pro Phe Leu Ser Ser Gln Ala Lys Glu Gly Leu Gly Ala
 165 170 175
 Ser Val Gly Tyr Ile Met Ala Ala Asn His Ala Ala Ser Val Leu Gly
 180 185 190
 Ser Ala Leu Ser Ile Ser Ala Glu Arg Ala Asp Cys Glu Glu Arg Cys
 195 200 205
 Asp Arg Ile Arg Cys Ser Glu Asp Gly Glu Ile Cys Glu Gly Asn Lys
 210 215 220
 Leu Thr Ala Ile Ser Glu Lys Ala Arg Ser Trp Thr Leu Ile Lys
 225 230 235 240
 Tyr Arg Phe Leu Thr Met Ile Glu Lys Leu Phe Glu Met Val Ala Asp
 245 250 255
 Ile Phe Lys Leu Ile Pro Leu Pro Ile Ser His Gly Ile Arg Ala Ile
 260 265 270
 Val Ala Ala Gly Cys Thr Leu Thr Ser Ala Val Ile Gly Leu Gly Thr
 275 280 285
 Phe Trp Ser Arg Ala
 290

<210> 138
 <211> 16
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Made in a lab

<400> 138
 Asp Leu Cys Val Ser His Lys Arg Arg Ala Ala Ala Ala Val Cys Ser
 1 5 10 15

<210> 139
 <211> 16
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Made in a lab

<400> 139
 Arg Ala Ala Ala Val Cys Ser Phe Ile Gly Gly Ile Thr Tyr Leu
 1 5 10 15

<210> 140
 <211> 18
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Made in a lab

<400> 140
 Cys Ser Phe Ile Gly Gly Ile Thr Tyr Leu Ala Thr Phe Gly Ala Ile
 1 5 10 15
 Arg Pro

<210> 141
 <211> 18
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Made in a lab

<400> 141
 Tyr Leu Ala Thr Phe Gly Ala Ile Arg Pro Ile Leu Phe Val Asn Lys
 1 5 10 15
 Met Leu

<210> 142
 <211> 18
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Made in a lab

<400> 142
 Arg Pro Ile Leu Phe Val Asn Lys Met Leu Ala Gln Pro Phe Leu Ser
 1 5 10 15
 Ser Gln

0984133-042301

<220>
<223> Made in a lab

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<210> 144
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 144
Cys Ser Phe Ile Gly Gly Ile Thr Tyr Leu
 1             5             10

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<220>
<223> Made in a lab

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<210> 146
<211> 8
<212> PRT
<213> Artificial Sequence
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<220>
<223> Made in a lab

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<210> 147
<211> 9
<212> PRT
<213> Artificial Sequence
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<223> Made in a lab

Cys Ser Phe Ile Gly Gly Ile Thr Tyr
1 5

<211> 8

<213> Artificial Sequence

<223> Made in a lab

Cys Ser Phe Ile Gly Gly Ile Thr
1 5

$\langle 211 \rangle$ 10

<213> Artificial Sequence

<223> Made in a lab

Cys Ser Ile Ile Gly Gly Ile Thr Tyr Leu
1 5 10

<211> 10

<213> Artificial Sequence

<223> Made in a lab

Cys Gly Phe Ile Gly Gly Ile Thr Tyr Leu
1 5 10

<211> 9

<213> Artificial Sequence

<223> Made in a lab

Gly Phe Ile Gly Gly Ile Thr Tyr Leu
1 5

<211> 20

<212> PRT
 <213> Artificial Sequence

<220>
 <223> Made in a lab

<400> 152
 Gln Ile Phe Val Cys Leu Ile Ser Ala Glu Arg Leu Arg Leu Arg Leu
 1 5 10 15
 Ser Val Ala Ser
 20

<210> 153
 <211> 20
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Made in a lab

<400> 153
 Glu Arg Leu Arg Leu Arg Leu Ser Val Ala Ser Ser Glu Glu Leu Pro
 1 5 10 15
 Thr Ser Arg His
 20

<210> 154
 <211> 20
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Made in a lab

<400> 154
 Ala Ser Ser Glu Glu Leu Pro Thr Ser Arg His Ser Glu Leu Ser Val
 1 5 10 15
 Arg Phe Cys Leu
 20

<210> 155
 <211> 20
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Made in a lab

<400> 155
 Arg His Ser Glu Leu Ser Val Arg Phe Cys Leu Ser Thr Lys Cys Trp
 1 5 10 15
 Arg Asn Arg Phe
 20

<210> 156
 <211> 20
 <212> PRT

090413-0400

<223> Made in a lab

Leu Ser Thr Lys Cys Trp Arg Asn Arg Phe Phe Leu Pro Lys Leu Lys
1 5 10 15
Gln Ile Trp Asp
20

<213> Artificial Sequence

<223> Made in a lab

[illegible]

<213> Artificial Sequence

<223> Made in a lab

[illegible]

<213> Chlamydia

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<211> 24

<212> DNA
 <213> Chlamydia

 <400> 160
 ttaagaaatt taaaaaatcc ctta 24

 <210> 161
 <211> 24
 <212> DNA
 <213> Chlamydia

 <400> 161
 ggtataatat ctctctaaat ttg 24

 <210> 162
 <211> 19
 <212> DNA
 <213> Chlamydia

 <400> 162
 agataaaaaa ggctgtttc 19

 <210> 163
 <211> 24
 <212> DNA
 <213> Chlamydia

 <400> 163
 ttttgaagca ggtaggtgaa tatg 24

 <210> 164
 <211> 29
 <212> DNA
 <213> Chlamydia

 <400> 164
 tttacaataa gaaaagctaa gcactttgt 29

 <210> 165
 <211> 20
 <212> DNA
 <213> Chlamydia

 <400> 165
 ccttacacag tcctgctgac 20

 <210> 166
 <211> 20
 <212> DNA
 <213> Chlamydia

 <400> 166
 gtttcggggc cctcacattg 20

 <210> 167
 <211> 9
 <212> PRT

| | | | | | | |
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| acagcgcacg | gaggagccta | tctatTTTgga | acgtggggat | ctgctgtttc | taattttattc | 1860 |
| tatgttcacg | acagctctgg | gaaacctatc | gataattggc | atcatagaag | ccttggttac | 1920 |
| ctattcggtg | tcagtactca | cagtttagat | gaccattctt | tctgcttggc | tgcaggacaa | 1980 |
| ttactcggga | aatcgctcga | ttcctttatt | acgtctacag | aaacgacctc | ctatatagct | 2040 |
| actgtacaag | cgcaactcgc | tacctctcta | atgaaaatct | ctgcacaggg | atgctacaat | 2100 |
| gaaagtatcc | atgagctaaa | aacaaaatat | cgctccttct | ctaaagaagg | attcggatcc | 2160 |
| tggcatagcg | ttgcagtatc | cggagaagtg | tgcgcacoga | ttcctattgt | atccaatggg | 2220 |
| tccggactgt | tcagctcctt | ctctatTTTt | tctaaactgc | aaggattttc | aggaacacag | 2280 |
| gacggTTTTg | aggagagtTc | gggagagatt | cggtcctttt | ctgccagctc | tttcagaaat | 2340 |
| atttcacttc | ctataggaat | aacattttgaa | aaaaaatccc | aaaaaacacg | aacctactat | 2400 |
| tactttctag | gagcctacat | ccaagacctg | aaacgtgatg | tggaaatcggg | acctgtagtg | 2460 |
| ttactcaaaa | atgccgtctc | ctgggatgct | cctatggcga | acttggattc | acgagcctac | 2520 |
| atgttccggc | ttacgaatca | aagagctcta | cacagacttc | agacgctggt | aaatgtgtct | 2580 |
| tgtgtgctgc | gtgggcaaaag | ccatagttac | tccctggatc | tggggaccac | ttacaggttc | 2640 |
| tag | | | | | | 2643 |

<210> 170

<211> 2949

<212> DNA

<213> Chlamydia

<400> 170

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| atgattcctc | aaggaattta | cgatggggag | acgttaactg | tatcattttc | ctatactgtt | 60 |
| ataggagatc | cgagtgggac | tactgttttt | tctgcaggag | agttaacatt | aaaaaatctt | 120 |
| gacaattcta | ttgcagcttt | gcctttaagt | tgttttggga | acttattagg | gagttttact | 180 |
| gttttaggga | gaggacactc | gttgactttc | gagaacatac | ggacttctac | aaatggggca | 240 |
| gctctaagta | atagcgtctg | tgatggactg | tttactattg | agggttttta | agaattatcc | 300 |
| ttttccaatt | gcaattcatt | acttgccgta | ctgcctgctg | caacgactaa | taagggtagc | 360 |
| cagactccga | cgacaacatc | tacaccgtct | aatgggtacta | tttattctaa | aacagatctt | 420 |
| ttgttactca | ataatgagaa | gttctcattc | tatagtaatt | tagtctctgg | agatggggga | 480 |
| gctatagatg | ctaagagctt | aacggttcaa | ggaattagca | agctttgtgt | cttccaagaa | 540 |
| aatactgctc | aagctgatgg | gggagcttgt | caagtagtca | ccagtttctc | tgctatggct | 600 |
| aacagggtc | ctattgcctt | tgtagcgaat | gttgaggag | taagaggggg | agggattgct | 660 |
| gctgttcagg | atgggcagca | gggagtgtca | tcatctactt | caacagaaga | tccagtagta | 720 |
| agtttttcca | gaaatactgc | ggtagagtgt | gatgggaacg | tagcccgagt | aggaggaggg | 780 |
| atttactcct | acgggaacgt | tgttttctct | aataatggaa | aaaccttggt | tctcaacaat | 840 |
| gttgcttctc | ctgtttacat | tgtgtctaag | caaccaacaa | gtggacaggg | ttctaatacg | 900 |
| agtaataatt | acggagatgg | aggagctatc | ttctgtaaga | atgggtgcgca | agcaggatcc | 960 |
| aataactctg | gatcagtttt | ctttgatgga | gagggagtag | ttttcttttag | tagcaatgta | 1020 |
| gctgctggga | aagggggagc | tatttatgcc | aaaaagctct | cggttgctaa | ctgtggccct | 1080 |
| gtacaatttt | taaggaatat | cgctaattgat | ggtggagcga | tttatttagg | agaatctgga | 1140 |
| gagctcagtt | tatctgctga | ttatggagat | attattttcg | atgggaatct | taaaagaaca | 1200 |
| gccaaagaga | atgctgccga | tgttaatggc | gtaactgtgt | cctcacaagc | catttcgatg | 1260 |
| ggatcgggag | ggaaaataac | gacattaaga | gctaaagcag | ggcatcagat | tctctttaat | 1320 |
| gatcccatcg | agatggcaaa | cggaaataac | cagccagcgc | agtcttccaa | acttctaaaa | 1380 |
| attaacgatg | gtgaaggata | cacaggggat | attgtttttg | ctaattggaag | cagtactttg | 1440 |
| taccaaaatg | ttacgataga | gcaagggaag | attgttcttc | gtgaaaaggc | aaaattatca | 1500 |
| ttgaattctc | taagtccagc | aggtgggagt | ctgtatatgg | aagctgggag | tacattggat | 1560 |
| tttctaactc | cacaaccacc | acaacagcct | ctgcgcgcta | atcagttgat | cacgctttcc | 1620 |
| aatctgcatt | tgtctctttc | ttctttgtta | gcaaacatg | cagttacgaa | tcctcctacc | 1680 |
| aatcctccag | cgcaagattc | tcatcctgca | gtcattggta | gcacaactgc | tggttctgtt | 1740 |
| acaatttagtg | ggcctatctt | ttttgaggat | ttggatgata | cagcttatga | taggtatgat | 1800 |
| tggctaggtt | ctaatacaaaa | aatcaatgtc | ctgaaattac | agttaggggac | taagcccca | 1860 |
| gctaatagcc | catcagattt | gactctaggg | aatgagatgc | ctaagtatgg | ctatcaagga | 1920 |
| agctggaagc | ttgcgtggga | tcctaataca | gcaaataatg | gtccttatac | tctgaaagct | 1980 |
| acatggacta | aaactgggta | taatcctggg | cctgagcgag | tagcttcttt | ggttccaaat | 2040 |
| agtttatggg | gatccatttt | agatatacga | tctgcgcatt | cagcaattca | agcaagtgtg | 2100 |

| | | | | | | |
|-------------|------------|-------------|------------|------------|------------|------|
| gatgggcgct | cttattgtcg | aggattatgg | gtttctggag | tttcgaattt | cttctatcat | 2160 |
| gaccgcgatg | ctttaggtca | gggatatcgg | tatattagtg | ggggttatcc | cttaggagca | 2220 |
| aactcctact | ttggatcatc | gatgttttgt | ctagcattta | ccgaagtatt | tggtagatct | 2280 |
| aaagattatg | tagtgtgtcg | ttccaatcat | catgcttgca | taggatccgt | ttatctatct | 2340 |
| acccaacaag | ctttatgtgg | atcctatattg | ttcggagatg | cgtttatccg | tgctagctac | 2400 |
| gggtttggga | atcagcatat | gaaaacotca | tatacatttg | cagaggagag | cgatgttcgt | 2460 |
| tgggataata | actgtctggc | tggagagatt | ggagcgggat | taccgattgt | gattactcca | 2520 |
| tctaagctct | atttgaatga | gttgcgctct | ttcgtgcaag | ctgagttttc | ttatgccgat | 2580 |
| catgaatctt | ttacagagga | aggcgatcaa | gctcgggcat | tcaagagcgg | acatctccta | 2640 |
| aatctatcag | ttcctgttgg | agtgaagttt | gatcgatgtt | ctagtacaca | tcctaataaa | 2700 |
| tatagcttta | tggcggctta | tatctgtgat | gcttatcgca | ccatctctgg | tactgagaca | 2760 |
| acgctcctat | cccatcaaga | gacatggaca | acagatgcct | ttcatttagc | aagacatgga | 2820 |
| gttggtggtta | gaggatctat | gtatgcttct | ctaacaagta | atatagaagt | atatggccat | 2880 |
| ggaagatatg | agtatcgaga | tgcttctcga | ggctatggtt | tgagtgcagg | magtaaagtc | 2940 |
| yggttctaa | | | | | | 2949 |

<210> 171

<211> 2895

<212> DNA

<213> Chlamydia

<400> 171

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| gttctttcta | gaatctttct | tatgoccaa | tcagttccag | atcctacgaa | agagtcgcta | 120 |
| tcaaataaaa | ttagtttgac | aggagacact | cacaatctca | ctaactgcta | tctcgataac | 180 |
| ctacgctaca | tactggctat | tctacaaaa | actcccaatg | aaggagctgc | tgtcacaata | 240 |
| acagattacc | taagcttttt | tgtacacaaa | aaagaaggta | tttattttgc | aaaaaatctc | 300 |
| acccctgaaa | gtggtggtgc | gattggttat | gcgagtccca | attctcctac | cgtggagatt | 360 |
| cgtgatacaa | taggtcctgt | aatctttgaa | aataatactt | gttgcagact | atttacctgg | 420 |
| agaaatcctt | atgctgctga | taaaataaga | gaaggcggag | ccattcatgc | tcaaaatctt | 480 |
| tacataaatc | ataatcatga | tgtggtcgga | tttatgaaga | actttttcta | tgtccaagga | 540 |
| ggagccatta | gtaccgctaa | tacctttgtt | gtgagcgaga | atcagtcctg | ttttctcttt | 600 |
| atggacaaca | tctgtattca | aactaatata | gcaggaaaag | gtggcgctat | ctatgctgga | 660 |
| acgagcaatt | cttttgagag | taataactgc | gatctcttct | tcatcaataa | cgctgttgt | 720 |
| gcaggaggag | cgatcttctc | ccctatctgt | tctctaacag | gaaatcgtgg | taacatcggt | 780 |
| ttctataaca | atcgctgctt | taaaaatgta | gaaacagctt | cttcagaagc | ttctgatgga | 840 |
| ggagcaatta | aagtaactac | tgccttagat | gttacaggca | atcggtgtag | gatctttttt | 900 |
| agtgacaata | tcacaaaaaa | ttatggcgga | gctattttacg | ctcctgtagt | taccctagtg | 960 |
| gataatggcc | ctacctactt | tataaacaat | atcgccaata | ataagggggg | cgctatctat | 1020 |
| atagacggaa | ccagtaactc | caaaatttct | gccgaccgcc | atgctattat | ttttaatgaa | 1080 |
| aatattgtga | ctaagttaac | taatgcaaat | ggtaccagta | cgtcagctaa | tcctcctaga | 1140 |
| agaaatgcaa | taacagtagc | aagctcctct | ggtgaaattc | tattaggagc | agggagtagc | 1200 |
| caaaatttaa | ttttttatga | tctatttgaa | gttagcaatg | caggggtctc | tgtgtccttc | 1260 |
| aataaggaag | ctgatcaaac | aggctctgta | gtattttcag | gagctactgt | taattctgca | 1320 |
| gattttcatc | aacgcaattt | acaaacaaaa | acacctgcac | cccttactct | cagtaatggg | 1380 |
| tttctatgta | togaagatca | tgctcagctt | acagtgaatc | gattcacaca | aactgggggt | 1440 |
| gttgtttctc | ttgggaatgg | agcagttctg | agttgctata | aaaatggtac | aggagattct | 1500 |
| gctagcaatg | cctctataac | actgaagcat | attggattga | atctttcttc | cattctgaaa | 1560 |
| agtgggtgctg | agattccttt | attgtgggta | gagcctacaa | ataacagcaa | taactataca | 1620 |
| gcagatactg | cagctacctt | ttcattaagt | gatgtaaaac | tctcactcat | tgatgactac | 1680 |
| gggaactctc | cttatgaatc | cacagatctg | acccatgctc | tgtcatcaca | gcctatgcta | 1740 |
| tctattttctg | aagctagcga | taaccagcta | caatcagaaa | atatagattt | ttcgggacta | 1800 |
| aatgtccctc | attatggatg | gcaaggactt | tggacttggg | gctgggcaaa | aactcaagat | 1860 |
| ccagaaccag | catcttcagc | aacaatcact | gatccacaaa | aagccaatag | atttcataga | 1920 |
| accttactac | taacatggct | tcttgccggg | tatgttccta | gcccaaaaac | cagaagtccc | 1980 |
| ctcatagcta | acaccttatg | ggggaatatg | ctgcttgcaa | cagaaagctt | aaaaaatagt | 2040 |
| gcagagctga | cacctagtgg | tcatcctttc | tggggaatta | caggaggagg | actaggcatg | 2100 |

| | | | | | | |
|-------------|-------------|-------------|------------|------------|------------|------|
| atgggtttacc | aagatcctcg | agaaaaatcat | cctggattcc | atatgcgctc | ttccggatac | 2160 |
| tctgcgggga | tgatagcagg | gcagacacac | accttctcat | tgaaattcag | tcagacctac | 2220 |
| accaaactca | atgagcggtta | cgcaaaaaaac | aacgtatctt | ctaaaaatta | ctcatgccaa | 2280 |
| ggagaaatgc | tcttctcatt | gcaagaaggt | ttcttgctga | ctaaattagt | tgggctttac | 2340 |
| agctatggag | accataactg | tcaccatttc | tatactcaag | gagaaaatct | aacatctcaa | 2400 |
| gggacgttcc | gcagtcaaac | gatgggaggt | gctgtctttt | ttgatctccc | tatgaaaccc | 2460 |
| tttgatcaa | cgcataact | gacagctccc | tttttaggtg | ctcttggtat | ttattctagc | 2520 |
| ctgtctcact | ttactgaggt | gggagcctat | ccgcgaagct | tttctacaaa | gactcctttg | 2580 |
| atcaatgtcc | tagtccctat | tggagttaaa | ggtagcttta | tgaatgctac | ccacagacct | 2640 |
| caagcctgga | ctgtagaatt | ggcataccaa | cccgttctgt | atagacaaga | accagggatc | 2700 |
| gcgacccagc | tcctagccag | taaaggtatt | tggtttggtg | gtggaagccc | ctcatcgcg | 2760 |
| catgccatgt | cctataaaat | ctcacagcaa | acacaacctt | tgagttgggt | aactctccat | 2820 |
| ttccagtatc | atggattcta | ctcctcttca | accttctgta | attatctcaa | tggggaaatt | 2880 |
| gctctgcgat | tctag | | | | | 2895 |

<210> 172

<211> 4593

<212> DNA

<213> Chlamydia

<400> 172

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| gctatccttg | cctctgttag | cgggttagct | agttgcgtag | atcttcatgc | tggaggacag | 120 |
| tctgtaaattg | agctggtata | tgtaggccct | caagcgggtt | tattgttaga | ccaaattcga | 180 |
| gatctattcg | ttgggtctaa | agatagtcag | gctgaaggac | agtatagggt | aattgttaga | 240 |
| gatccaagtt | ctttccaaga | gaaagatgca | gatactcttc | ccgggaaggt | agagcaaagt | 300 |
| actttgttct | cagtaaccaa | tcccgtgggt | ttccaagggtg | tggaccaaca | ggatcaagtc | 360 |
| tcttcccaag | ggttaatttg | tagttttacg | agcagcaacc | ttgattctcc | ccgtgacgga | 420 |
| gaatcttttt | taggtattgc | ttttgttggg | gatagtagta | aggctggaat | cacattaact | 480 |
| gacgtgaaaag | cttctttgtc | tggagcgggt | ttatattcta | cagaagatct | tatctttgaa | 540 |
| aagattaagg | gtggattgga | atttgcattca | tgttcttctc | tagaacaggg | gggagcttgt | 600 |
| gcagctcaaa | gtattttgat | tcatgattgt | caaggattgc | aggttaaaca | ctgtactaca | 660 |
| gcogtgaatg | ctgaggggtc | tagtgcgaa | gatactcttg | gatttggagg | aggcgctttc | 720 |
| tttgttacgg | gttctctttc | tggagagaaa | agtctctata | tgcctgcagg | agatatggta | 780 |
| gttgcggaatt | gtgatggggc | tatatctttt | gaaggaaaca | gcgcgaactt | tgctaattgga | 840 |
| ggagcgattg | ctgcctctgg | gaaagtgcct | tttgtcgcta | atgataaaaa | gacttctttt | 900 |
| atagagaacc | gagctttgtc | tggaggagcg | attgcagcct | cttctgatat | tgcctttcaa | 960 |
| aactgcgcag | aactagtttt | caaaggcaat | tgtgcaattg | gaacagagga | taaaggttct | 1020 |
| ttagggtggag | gggctatatc | ttctctaggc | accgttcttt | tgcaggga | tcacgggata | 1080 |
| acttgtgata | agaatgagtc | tgcttcgcaa | ggaggcgcca | tttttggcaa | aaattgtcag | 1140 |
| atctctgaca | acgaggggcc | agtgggtttc | agagatagta | cagcttgctt | aggaggaggc | 1200 |
| gctattgcag | ctcaagaaat | tgtttctatt | cagaacaatc | aggctgggat | ttccttcgag | 1260 |
| ggaggtaagg | ctagtttcgg | aggaggtatt | gcgtgtggat | ctttttcttc | cgcaggcggt | 1320 |
| gcttctgttt | tagggactat | tgatatttctg | aagaatttag | gcgcgatttc | gttctctcgt | 1380 |
| actttatgta | cgacctcaga | tttaggacaa | atggagtacc | aggaggagg | agctctatct | 1440 |
| ggtgaaaata | tttctctttc | tgagaatgct | ggtgtgctca | cctttaaaga | caacattgtg | 1500 |
| aagacttttg | cttcgaatgg | gaaaattctg | ggaggaggag | cgatttttagc | tactggttaag | 1560 |
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| gctcttccaa | ctcaagagga | gtttccttta | ttcagacaaa | aagaaggggc | accactctct | 1680 |
| tcaggatatt | ctgggggagg | agcgatttta | ggaagagaag | tagctattct | ccacaacgct | 1740 |
| gcagtagtat | ttgagcaaaa | tcgtttgcag | tgcagcgaag | aagaagcgac | attattaggt | 1800 |
| tgttgtggag | gaggcgctgt | tcatgggatg | gatagcactt | cgattgttgg | caactcttca | 1860 |
| gtaagatttg | gtaataatta | cgcaatggga | caaggagtct | caggaggagc | tcttttatct | 1920 |
| aaaacagtgc | agttagctgg | aaatggaagc | gtcgattttt | ctcgaaatat | tgctagtttg | 1980 |
| ggaggaggag | ctcttcaagc | ttctgaagga | aattgtgagc | tagttgataa | cggctatgtg | 2040 |
| ctattcagag | ataatcgagg | gagggtttat | gggggtgcta | tttcttgctt | acgtggagat | 2100 |
| gtagtcattt | ctggaacaaa | gggtagagtt | gaatttaaag | acaacatagc | aacacgtctt | 2160 |

| | | | | | | |
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| tatgtggaag | aaactgtaga | aaaggttgaa | gaggtagagc | cagctcctga | gcaaaaagac | 2220 |
| aataatgagc | tttctttctt | agggagtgtg | gaacagagtt | ttattactgc | agctaataca | 2280 |
| gctcttttcg | catctgaaga | tggggattta | tcacctgagt | catccatttc | ttctgaagaa | 2340 |
| cttgcgaaaa | gaagagagtg | tgctggagga | gctatTTTTg | caaaacgggt | tcgtattgta | 2400 |
| gataaccaag | aggccgttgt | attctcgaat | aacttctctg | atatttatgg | cggcgccatt | 2460 |
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| cctcatcacg | gtgggggagc | catttgtagt | caaaatttga | cgatttctca | gaatacaggg | 2640 |
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| agagcacaag | gatccgatgc | tatctatTTT | gcaggtaaag | aatcgcatat | tacagccctg | 2820 |
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| agccttgagt | tgctaaatgg | agctacatta | tgtagttaat | gttttaaaac | agatgctgga | 3060 |
| gctaagtTgg | tattggctgc | tggtactaaa | ctgaagattt | tagattcagg | aactcctgta | 3120 |
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| acatctcgag | gagtactggc | agatgcttta | gttgaatacc | gaagtttagt | tggtcctgtg | 4140 |
| agacctactt | tttatgcttt | gcatttcaat | ccttatgtcg | aagtatctta | tgcttctatg | 4200 |
| aaattccctg | gctttacaga | acaaggaaga | gaagcgcgtt | cttttgaaga | cgcttccctt | 4260 |
| accaatatca | ccattccttt | agggatgaag | tttgaattgg | cgttcataaa | aggacagttt | 4320 |
| tcagaggTga | actctttggg | aataagttat | gcatgggaag | cttatcgaaa | agtagaagga | 4380 |
| ggcgcggtgc | agcttttTaga | agctgggttt | gattgggagg | gagctccaat | ggatcttcc | 4440 |
| agacaggagc | tgcgtgtcgc | tctggaaaat | aatacggaat | ggagttctta | cttcagcaca | 4500 |
| gtcttaggat | taacagcttt | ttgtggagga | tttacttcta | cagatagtaa | actaggatat | 4560 |
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<210> 173

<211> 5331

<212> DNA

<213> Chlamydia

<400> 173

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| gaggcgagct | cgatccaaga | tcaaaataaag | aataccgact | gcaatgttag | caaagtagga | 120 |
| tattcaactt | ctcaagcatt | tactgatatg | atgctagcag | acaacacaga | gtatcgagct | 180 |
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| aatactgaga | attcacaaga | ttcagctccc | tcttctggag | aaactgataa | gaaaacagaa | 360 |
| gaagaactag | acaatggcgg | aatcattttat | gctagagaga | aactaactat | ctcagaatct | 420 |
| caggactctc | tctctaattcc | aagcatagaa | ctccatgaca | atagtttttt | cttcggagaa | 480 |
| ggtgaagtta | tctttgatca | cagagttgcc | ctcaaaaacg | gaggagctat | ttatggagag | 540 |

| | | | | | | |
|-------------|-------------|-------------|-------------|-------------|-------------|------|
| aaagaggtag | tctttgaaaa | cataaaatct | ctactagtag | aagtaaatat | ctcgggtcgag | 600 |
| aaagggggta | gcgtctatgc | aaaagaacga | gtatcttttag | aaaatgttac | cgaagcaacc | 660 |
| ttctcctcca | atggtgggga | acaaggtggt | ggtggaatct | attcagaaca | agatatgtta | 720 |
| atcagtgatt | gcaacaatgt | acatttccaa | gggaatgctg | caggagcaac | agcagtaaaa | 780 |
| caatgtctgg | atgaagaaat | gatcgtattg | ctcacagaat | gcgttgatag | cttatccgaa | 840 |
| gatacactgg | atagcactcc | agaaacggaa | cagactaagt | caaatggaaa | tcaagatggg | 900 |
| tcgtctgaaa | caaaagatac | acaagtatca | gaatcaccag | aatcaactcc | tagccccgac | 960 |
| gatgttttag | gtaaaggtgg | tggtatctat | acagaaaaat | ctttgaccat | cactggaatt | 1020 |
| acagggacta | tagattttgt | cagtaacata | gctaccgatt | ctggagcagg | tgtattcact | 1080 |
| aaagaaaaact | tgtcttgac | caacacgaat | agcctacagt | ttttgaaaaa | ctcggcagggt | 1140 |
| caacatggag | gaggagccta | cgttactcaa | accatgtctg | ttactaatac | aactagttaa | 1200 |
| agtataacta | ctccccctct | cgtagggaga | gtgattttct | ctgaaaatac | agctaaaggg | 1260 |
| cacggtgggtg | gtatctgcac | taacaaactt | tctttatcta | atttaaaaac | ggtgactctc | 1320 |
| actaaaaact | ctgcaaagga | gtctggagga | gctattttta | cagatctagc | gtctatacca | 1380 |
| acaacagata | ccccagagtc | ttctaccccc | tcttctctct | cgctgcaag | cactccccgaa | 1440 |
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| tctctaacag | aggctgagtc | tgatcaaacg | gatcaaacag | aaacttctga | tactaatagc | 1560 |
| gatatagacg | tgtcgattga | gaacattttg | aatgtcgcta | tcaatcaaaa | cacttctgog | 1620 |
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| Asp Arg Ala Val Leu Ser Ala Pro Ser Leu Ser Gln Asp Pro Gln Ala | | 445 |
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| Lys Leu Ala Thr Leu Ser Ile Pro Leu His Ser Leu Asp Thr Glu Lys | | 475 |
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| | 485 | 490 |
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| | 500 | 510 |
| Lys Glu Gln Asn Asn Ile Pro Leu Leu Thr Leu Pro Lys Glu Gln Ser | | 525 |
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| Ser Thr Leu Val Ala Asn Thr Leu Trp Asn Thr Tyr Ser Asp Met Gln | | 585 |
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 Leu Ser Cys Phe Gly Asn Leu Leu Gly Ser Phe Thr Val Leu Gly Arg
 50 55 60
 Gly His Ser Leu Thr Phe Glu Asn Ile Arg Thr Ser Thr Asn Gly Ala
 65 70 75 80
 Ala Leu Ser Asn Ser Ala Ala Asp Gly Leu Phe Thr Ile Glu Gly Phe
 85 90 95
 Lys Glu Leu Ser Phe Ser Asn Cys Asn Ser Leu Leu Ala Val Leu Pro
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 Ala Ala Thr Thr Asn Lys Gly Ser Gln Thr Pro Thr Thr Thr Ser Thr
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 Pro Ser Asn Gly Thr Ile Tyr Ser Lys Thr Asp Leu Leu Leu Leu Asn
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 Asn Glu Lys Phe Ser Phe Tyr Ser Asn Leu Val Ser Gly Asp Gly Gly
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 Ala Asn Val Ala Gly Val Arg Gly Gly Gly Ile Ala Ala Val Gln Asp
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 Gly Gln Gln Gly Val Ser Ser Ser Thr Ser Thr Glu Asp Pro Val Val

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Ser | Phe | Ser | Arg | Asn | Thr | Ala | Val | Glu | Phe | Asp | Gly | Asn | Val | Ala | Arg |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Val | Gly | Gly | Gly | Ile | Tyr | Ser | Tyr | Gly | Asn | Val | Ala | Phe | Leu | Asn | Asn |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Gly | Lys | Thr | Leu | Phe | Leu | Asn | Asn | Val | Ala | Ser | Pro | Val | Tyr | Ile | Ala |
| | | | 275 | | | | 280 | | | | | 285 | | | |
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| | | | 290 | | | 295 | | | | | 300 | | | | |
| Gly | Asp | Gly | Gly | Ala | Ile | Phe | Cys | Lys | Asn | Gly | Ala | Gln | Ala | Gly | Ser |
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| Asn | Asn | Ser | Gly | Ser | Val | Ser | Phe | Asp | Gly | Glu | Gly | Val | Val | Phe | Phe |
| | | | | 325 | | | | 330 | | | | | | 335 | |
| Ser | Ser | Asn | Val | Ala | Ala | Gly | Lys | Gly | Gly | Ala | Ile | Tyr | Ala | Lys | Lys |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Leu | Ser | Val | Ala | Asn | Cys | Gly | Pro | Val | Gln | Phe | Leu | Arg | Asn | Ile | Ala |
| | | | 355 | | | | 360 | | | | | 365 | | | |
| Asn | Asp | Gly | Gly | Ala | Ile | Tyr | Leu | Gly | Glu | Ser | Gly | Glu | Leu | Ser | Leu |
| | | | | | | 375 | | | | | 380 | | | | |
| Ser | Ala | Asp | Tyr | Gly | Asp | Ile | Ile | Phe | Asp | Gly | Asn | Leu | Lys | Arg | Thr |
| 385 | | | | | 390 | | | | 395 | | | | | 400 | |
| Ala | Lys | Glu | Asn | Ala | Ala | Asp | Val | Asn | Gly | Val | Thr | Val | Ser | Ser | Gln |
| | | | | 405 | | | | 410 | | | | | | 415 | |
| Ala | Ile | Ser | Met | Gly | Ser | Gly | Gly | Lys | Ile | Thr | Thr | Leu | Arg | Ala | Lys |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Ala | Gly | His | Gln | Ile | Leu | Phe | Asn | Asp | Pro | Ile | Glu | Met | Ala | Asn | Gly |
| | | | 435 | | | | 440 | | | | | 445 | | | |
| Asn | Asn | Gln | Pro | Ala | Gln | Ser | Ser | Lys | Leu | Leu | Lys | Ile | Asn | Asp | Gly |
| | | | | | | 455 | | | | | 460 | | | | |
| Glu | Gly | Tyr | Thr | Gly | Asp | Ile | Val | Phe | Ala | Asn | Gly | Ser | Ser | Thr | Leu |
| 465 | | | | | 470 | | | | 475 | | | | | 480 | |
| Tyr | Gln | Asn | Val | Thr | Ile | Glu | Gln | Gly | Arg | Ile | Val | Leu | Arg | Glu | Lys |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Ala | Lys | Leu | Ser | Val | Asn | Ser | Leu | Ser | Gln | Thr | Gly | Gly | Ser | Leu | Tyr |
| | | | 500 | | | | | 505 | | | | | 510 | | |
| Met | Glu | Ala | Gly | Ser | Thr | Leu | Asp | Phe | Val | Thr | Pro | Gln | Pro | Pro | Gln |
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| Gln | Pro | Pro | Ala | Ala | Asn | Gln | Leu | Ile | Thr | Leu | Ser | Asn | Leu | His | Leu |
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| Ser | Leu | Ser | Ser | Leu | Leu | Ala | Asn | Asn | Ala | Val | Thr | Asn | Pro | Pro | Thr |
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| Asn | Pro | Pro | Ala | Gln | Asp | Ser | His | Pro | Ala | Val | Ile | Gly | Ser | Thr | Thr |
| | | | | 565 | | | | | 570 | | | | | 575 | |
| Ala | Gly | Ser | Val | Thr | Ile | Ser | Gly | Pro | Ile | Phe | Phe | Glu | Asp | Leu | Asp |
| | | | 580 | | | | | 5 | | | | | | | |

Ile Arg Ser Ala His Ser Ala Ile Gln Ala Ser Val Asp Gly Arg Ser
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 Tyr Cys Arg Gly Leu Trp Val Ser Gly Val Ser Asn Phe Phe Tyr His
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 Asp Arg Asp Ala Leu Gly Gln Gly Tyr Arg Tyr Ile Ser Gly Gly Tyr
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 Ser Leu Gly Ala Asn Ser Tyr Phe Gly Ser Ser Met Phe Gly Leu Ala
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 Phe Thr Glu Val Phe Gly Arg Ser Lys Asp Tyr Val Val Cys Arg Ser
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 Asn His His Ala Cys Ile Gly Ser Val Tyr Leu Ser Thr Gln Gln Ala
 770 775 780
 Leu Cys Gly Ser Tyr Leu Phe Gly Asp Ala Phe Ile Arg Ala Ser Tyr
 785 790 795 800
 Gly Phe Gly Asn Gln His Met Lys Thr Ser Tyr Thr Phe Ala Glu Glu
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 Ser Asp Val Arg Trp Asp Asn Asn Cys Leu Ala Gly Glu Ile Gly Ala
 820 825 830
 Gly Leu Pro Ile Val Ile Thr Pro Ser Lys Leu Tyr Leu Asn Glu Leu
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 Arg Pro Phe Val Gln Ala Glu Phe Ser Tyr Ala Asp His Glu Ser Phe
 850 855 860
 Thr Glu Glu Gly Asp Gln Ala Arg Ala Phe Lys Ser Gly His Leu Leu
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 Asn Leu Ser Val Pro Val Gly Val Lys Phe Asp Arg Cys Ser Ser Thr
 885 890 895
 His Pro Asn Lys Tyr Ser Phe Met Ala Ala Tyr Ile Cys Asp Ala Tyr
 900 905 910
 Arg Thr Ile Ser Gly Thr Glu Thr Thr Leu Leu Ser His Gln Glu Thr
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 Trp Thr Thr Asp Ala Phe His Leu Ala Arg His Gly Val Val Val Arg
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 Gly Ser Met Tyr Ala Ser Leu Thr Ser Asn Ile Glu Val Tyr Gly His
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 Gly Ser Lys Val Xaa Phe
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 Pro Asp Pro Thr Lys Glu Ser Leu Ser Asn Lys Ile Ser Leu Thr Gly
 35 40 45
 Asp Thr His Asn Leu Thr Asn Cys Tyr Leu Asp Asn Leu Arg Tyr Ile
 50 55 60
 Leu Ala Ile Leu Gln Lys Thr Pro Asn Glu Gly Ala Ala Val Thr Ile
 65 70 75 80
 Thr Asp Tyr Leu Ser Phe Phe Asp Thr Gln Lys Glu Gly Ile Tyr Phe
 85 90 95

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Ala Lys Asn Leu Thr Pro Glu Ser Gly Gly Ala Ile Gly Tyr Ala Ser
 100 105 110
 Pro Asn Ser Pro Thr Val Glu Ile Arg Asp Thr Ile Gly Pro Val Ile
 115 120 125
 Phe Glu Asn Asn Thr Cys Cys Arg Leu Phe Thr Trp Arg Asn Pro Tyr
 130 135 140
 Ala Ala Asp Lys Ile Arg Glu Gly Gly Ala Ile His Ala Gln Asn Leu
 145 150 155 160
 Tyr Ile Asn His Asn His Asp Val Val Gly Phe Met Lys Asn Phe Ser
 165 170 175
 Tyr Val Gln Gly Gly Ala Ile Ser Thr Ala Asn Thr Phe Val Val Ser
 180 185 190
 Glu Asn Gln Ser Cys Phe Leu Phe Met Asp Asn Ile Cys Ile Gln Thr
 195 200 205
 Asn Thr Ala Gly Lys Gly Gly Ala Ile Tyr Ala Gly Thr Ser Asn Ser
 210 215 220
 Phe Glu Ser Asn Asn Cys Asp Leu Phe Phe Ile Asn Asn Ala Cys Cys
 225 230 235 240
 Ala Gly Gly Ala Ile Phe Ser Pro Ile Cys Ser Leu Thr Gly Asn Arg
 245 250 255
 Gly Asn Ile Val Phe Tyr Asn Asn Arg Cys Phe Lys Asn Val Glu Thr
 260 265 270
 Ala Ser Ser Glu Ala Ser Asp Gly Gly Ala Ile Lys Val Thr Thr Arg
 275 280 285
 Leu Asp Val Thr Gly Asn Arg Gly Arg Ile Phe Phe Ser Asp Asn Ile
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 Thr Lys Asn Tyr Gly Gly Ala Ile Tyr Ala Pro Val Val Thr Leu Val
 305 310 315 320
 Asp Asn Gly Pro Thr Tyr Phe Ile Asn Asn Ile Ala Asn Asn Lys Gly
 325 330 335
 Gly Ala Ile Tyr Ile Asp Gly Thr Ser Asn Ser Lys Ile Ser Ala Asp
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 Arg His Ala Ile Ile Phe Asn Glu Asn Ile Val Thr Asn Val Thr Asn
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 Ala Asn Gly Thr Ser Thr Ser Ala Asn Pro Pro Arg Arg Asn Ala Ile
 370 375 380
 Thr Val Ala Ser Ser Ser Gly Glu Ile Leu Leu Gly Ala Gly Ser Ser
 385 390 395 400
 Gln Asn Leu Ile Phe Tyr Asp Pro Ile Glu Val Ser Asn Ala Gly Val
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 Ser Val Ser Phe Asn Lys Glu Ala Asp Gln Thr Gly Ser Val Val Phe
 420 425 430
 Ser Gly Ala Thr Val Asn Ser Ala Asp Phe His Gln Arg Asn Leu Gln
 435 440 445
 Thr Lys Thr Pro Ala Pro Leu Thr Leu Ser Asn Gly Phe Leu Cys Ile
 450 455 460
 Glu Asp His Ala Gln Leu Thr Val Asn Arg Phe Thr Gln Thr Gly Gly
 465 470 475 480
 Val Val Ser Leu Gly Asn Gly Ala Val Leu Ser Cys Tyr Lys Asn Gly
 485 490 495
 Thr Gly Asp Ser Ala Ser Asn Ala Ser Ile Thr Leu Lys His Ile Gly
 500 505 510
 Leu Asn Leu Ser Ser Ile Leu Lys Ser Gly Ala Glu Ile Pro Leu Leu
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 Trp Val Glu Pro Thr Asn Asn Ser Asn Asn Tyr Thr Ala Asp Thr Ala
 530 535 540
 Ala Thr Phe Ser Leu Ser Asp Val Lys Leu Ser Leu Ile Asp Asp Tyr

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Gln Pro Met Leu Ser Ile Ser Glu Ala Ser Asp Asn Gln Leu Gln Ser
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Glu Asn Ile Asp Phe Ser Gly Leu Asn Val Pro His Tyr Gly Trp Gln
      595      600      605
Gly Leu Trp Thr Trp Gly Trp Ala Lys Thr Gln Asp Pro Glu Pro Ala
      610      615      620
Ser Ser Ala Thr Ile Thr Asp Pro Gln Lys Ala Asn Arg Phe His Arg
      625      630      635      640
Thr Leu Leu Leu Thr Trp Leu Pro Ala Gly Tyr Val Pro Ser Pro Lys
      645      650      655
His Arg Ser Pro Leu Ile Ala Asn Thr Leu Trp Gly Asn Met Leu Leu
      660      665      670
Ala Thr Glu Ser Leu Lys Asn Ser Ala Glu Leu Thr Pro Ser Gly His
      675      680      685
Pro Phe Trp Gly Ile Thr Gly Gly Gly Leu Gly Met Met Val Tyr Gln
      690      695      700
Asp Pro Arg Glu Asn His Pro Gly Phe His Met Arg Ser Ser Gly Tyr
      705      710      715      720
Ser Ala Gly Met Ile Ala Gly Gln Thr His Thr Phe Ser Leu Lys Phe
      725      730      735
Ser Gln Thr Tyr Thr Lys Leu Asn Glu Arg Tyr Ala Lys Asn Asn Val
      740      745      750
Ser Ser Lys Asn Tyr Ser Cys Gln Gly Glu Met Leu Phe Ser Leu Gln
      755      760      765
Glu Gly Phe Leu Leu Thr Lys Leu Val Gly Leu Tyr Ser Tyr Gly Asp
      770      775      780
His Asn Cys His His Phe Tyr Thr Gln Gly Glu Asn Leu Thr Ser Gln
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Gly Thr Phe Arg Ser Gln Thr Met Gly Gly Ala Val Phe Phe Asp Leu
      805      810      815
Pro Met Lys Pro Phe Gly Ser Thr His Ile Leu Thr Ala Pro Phe Leu
      820      825      830
Gly Ala Leu Gly Ile Tyr Ser Ser Leu Ser His Phe Thr Glu Val Gly
      835      840      845
Ala Tyr Pro Arg Ser Phe Ser Thr Lys Thr Pro Leu Ile Asn Val Leu
      850      855      860
Val Pro Ile Gly Val Lys Gly Ser Phe Met Asn Ala Thr His Arg Pro
      865      870      875      880
Gln Ala Trp Thr Val Glu Leu Ala Tyr Gln Pro Val Leu Tyr Arg Gln
      885      890      895
Glu Pro Gly Ile Ala Thr Gln Leu Leu Ala Ser Lys Gly Ile Trp Phe
      900      905      910
Gly Ser Gly Ser Pro Ser Ser Arg His Ala Met Ser Tyr Lys Ile Ser
      915      920      925
Gln Gln Thr Gln Pro Leu Ser Trp Leu Thr Leu His Phe Gln Tyr His
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Ala Leu Arg Phe

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<213> Chlamydia

<400> 178

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| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ser | Val | Val | Ala | Ala | Ile | Leu | Ala | Ser | Val | Ser | Gly | Leu | Ala | Ser | Cys |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Val | Asp | Leu | His | Ala | Gly | Gly | Gln | Ser | Val | Asn | Glu | Leu | Val | Tyr | Val |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Gly | Pro | Gln | Ala | Val | Leu | Leu | Leu | Asp | Gln | Ile | Arg | Asp | Leu | Phe | Val |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Gly | Ser | Lys | Asp | Ser | Gln | Ala | Glu | Gly | Gln | Tyr | Arg | Leu | Ile | Val | Gly |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Asp | Pro | Ser | Ser | Phe | Gln | Glu | Lys | Asp | Ala | Asp | Thr | Leu | Pro | Gly | Lys |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Val | Glu | Gln | Ser | Thr | Leu | Phe | Ser | Val | Thr | Asn | Pro | Val | Val | Phe | Gln |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Gly | Val | Asp | Gln | Gln | Asp | Gln | Val | Ser | Ser | Gln | Gly | Leu | Ile | Cys | Ser |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Phe | Thr | Ser | Ser | Asn | Leu | Asp | Ser | Pro | Arg | Asp | Gly | Glu | Ser | Phe | Leu |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Gly | Ile | Ala | Phe | Val | Gly | Asp | Ser | Ser | Lys | Ala | Gly | Ile | Thr | Leu | Thr |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Asp | Val | Lys | Ala | Ser | Leu | Ser | Gly | Ala | Ala | Leu | Tyr | Ser | Thr | Glu | Asp |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Leu | Ile | Phe | Glu | Lys | Ile | Lys | Gly | Gly | Leu | Glu | Phe | Ala | Ser | Cys | Ser |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Ser | Leu | Glu | Gln | Gly | Gly | Ala | Cys | Ala | Ala | Gln | Ser | Ile | Leu | Ile | His |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Asp | Cys | Gln | Gly | Leu | Gln | Val | Lys | His | Cys | Thr | Thr | Ala | Val | Asn | Ala |
| | 210 | | | | | 215 | | | | | | 220 | | | |
| Glu | Gly | Ser | Ser | Ala | Asn | Asp | His | Leu | Gly | Phe | Gly | Gly | Gly | Ala | Phe |
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| Phe | Val | Thr | Gly | Ser | Leu | Ser | Gly | Glu | Lys | Ser | Leu | Tyr | Met | Pro | Ala |
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| Gly | Asp | Met | Val | Val | Ala | Asn | Cys | Asp | Gly | Ala | Ile | Ser | Phe | Glu | Gly |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Asn | Ser | Ala | Asn | Phe | Ala | Asn | Gly | Gly | Ala | Ile | Ala | Ala | Ser | Gly | Lys |
| | | 275 | | | | | 280 | | | | | | 285 | | |
| Val | Leu | Phe | Val | Ala | Asn | Asp | Lys | Lys | Thr | Ser | Phe | Ile | Glu | Asn | Arg |
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| Ala | Leu | Ser | Gly | Gly | Ala | Ile | Ala | Ala | Ser | Ser | Asp | Ile | Ala | Phe | Gln |
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| Asn | Cys | Ala | Glu | Leu | Val | Phe | Lys | Gly | Asn | Cys | Ala | Ile | Gly | Thr | Glu |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Asp | Lys | Gly | Ser | Leu | Gly | Gly | Gly | Ala | Ile | Ser | Ser | Leu | Gly | Thr | Val |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Leu | Leu | Gln | Gly | Asn | His | Gly | Ile | Thr | Cys | Asp | Lys | Asn | Glu | Ser | Ala |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Ser | Gln | Gly | Gly | Ala | Ile | Phe | Gly | Lys | Asn | Cys | Gln | Ile | Ser | Asp | Asn |
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| Glu | Gly | Pro | Val | Val | Phe | Arg | Asp | Ser | Thr | Ala | Cys | Leu | Gly | Gly | Gly |
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| Ala | Ile | Ala | Ala | Gln | Glu | Ile | Val | Ser | Ile | Gln | Asn | Asn | Gln | Ala | Gly |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Ile | Ser | Phe | Glu | Gly | Gly | Lys | Ala | Ser | Phe | Gly | Gly | Gly | Ile | Ala | Cys |
| | | | 420 | | | | | 425 | | | | | 430 | | |

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Gly Ser Phe Ser Ser Ala Gly Gly Ala Ser Val Leu Gly Thr Ile Asp
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 Ile Ser Lys Asn Leu Gly Ala Ile Ser Phe Ser Arg Thr Leu Cys Thr
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 Gly Glu Asn Ile Ser Leu Ser Glu Asn Ala Gly Val Leu Thr Phe Lys
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 Gly Ile Ser Phe Thr Gly Asn Ala Arg Ala Pro Gln Ala Leu Pro Thr
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 Gln Glu Glu Phe Pro Leu Phe Ser Lys Lys Glu Gly Arg Pro Leu Ser
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 Ser Gly Tyr Ser Gly Gly Ala Ile Leu Gly Arg Glu Val Ala Ile
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 Leu His Asn Ala Ala Val Val Phe Glu Gln Asn Arg Leu Gln Cys Ser
 580 585 590
 Glu Glu Glu Ala Thr Leu Leu Gly Cys Cys Gly Gly Gly Ala Val His
 595 600 605
 Gly Met Asp Ser Thr Ser Ile Val Gly Asn Ser Ser Val Arg Phe Gly
 610 615 620
 Asn Asn Tyr Ala Met Gly Gln Gly Val Ser Gly Gly Ala Leu Leu Ser
 625 630 635 640
 Lys Thr Val Gln Leu Ala Gly Asn Gly Ser Val Asp Phe Ser Arg Asn
 645 650 655
 Ile Ala Ser Leu Gly Gly Gly Ala Leu Gln Ala Ser Glu Gly Asn Cys
 660 665 670
 Glu Leu Val Asp Asn Gly Tyr Val Leu Phe Arg Asp Asn Arg Gly Arg
 675 680 685
 Val Tyr Gly Gly Ala Ile Ser Cys Leu Arg Gly Asp Val Val Ile Ser
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 Gly Asn Lys Gly Arg Val Glu Phe Lys Asp Asn Ile Ala Thr Arg Leu
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 Tyr Val Glu Glu Thr Val Glu Lys Val Glu Glu Val Glu Pro Ala Pro
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 Glu Gln Lys Asp Asn Asn Glu Leu Ser Phe Leu Gly Ser Val Glu Gln
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 Gly Gly Ala Ile Phe Thr Gly Ser Leu Arg Glu Glu Asp Lys Leu Asp
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 Phe Ser Gly Asn Ser Ser Lys Arg Asp Glu His Leu Pro His Thr Gly
 850 855 860
 Gly Gly Ala Ile Cys Thr Gln Asn Leu Thr Ile Ser Gln Asn Thr Gly
 865 870 875 880
 Asn Val Leu Phe Tyr Asn Asn Val Ala Cys Ser Gly Gly Ala Val Arg

| | | | | | | | | | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|
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| | | | 900 | | | | | | 905 | | | | | | 910 | | | |
| Val | Phe | Lys | Gly | Asn | Ser | Ser | Phe | Arg | Ala | Gln | Gly | Ser | Asp | Ala | Ile | | | |
| | | 915 | | | | | 920 | | | | | | 925 | | | | | |
| Tyr | Phe | Ala | Gly | Lys | Glu | Ser | His | Ile | Thr | Ala | Leu | Asn | Ala | Thr | Glu | | | |
| | | 930 | | | | 935 | | | | | 940 | | | | | | | |
| Gly | His | Ala | Ile | Val | Phe | His | Asp | Ala | Leu | Val | Phe | Glu | Asn | Leu | Lys | | | |
| 945 | | | | | 950 | | | | 955 | | | | | | 960 | | | |
| Glu | Arg | Lys | Ser | Ala | Glu | Val | Leu | Leu | Ile | Asn | Ser | Arg | Glu | Asn | Pro | | | |
| | | | 965 | | | | | | 970 | | | | | 975 | | | | |
| Gly | Tyr | Thr | Gly | Ser | Ile | Arg | Phe | Leu | Glu | Ala | Glu | Ser | Lys | Val | Pro | | | |
| | | | 980 | | | | | 985 | | | | | 990 | | | | | |
| Gln | Cys | Ile | His | Val | Gln | Gln | Gly | Ser | Leu | Glu | Leu | Leu | Asn | Gly | Ala | | | |
| | | 995 | | | | | 1000 | | | | | 1005 | | | | | | |
| Thr | Leu | Cys | Ser | Tyr | Gly | Phe | Lys | Gln | Asp | Ala | Gly | Ala | Lys | Leu | Val | | | |
| | 1010 | | | | | 1015 | | | | | 1020 | | | | | | | |
| Leu | Ala | Ala | Gly | Ser | Lys | Leu | Lys | Ile | Leu | Asp | Ser | Gly | Thr | Pro | Val | | | |
| 1025 | | | | | 1030 | | | | 1035 | | | | | | 1040 | | | |
| Gln | Gly | His | Ala | Ile | Ser | Lys | Pro | Glu | Ala | Glu | Ile | Glu | Ser | Ser | Ser | | | |
| | | | 1045 | | | | | | 1050 | | | | | 1055 | | | | |
| Glu | Pro | Glu | Gly | Ala | His | Ser | Leu | Trp | Ile | Ala | Lys | Asn | Ala | Gln | Thr | | | |
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| Thr | Val | Pro | Met | Val | Asp | Ile | His | Thr | Ile | Ser | Val | Asp | Leu | Ala | Ser | | | |
| | 1075 | | | | | 1080 | | | | | | 1085 | | | | | | |
| Phe | Ser | Ser | Ser | Gln | Gln | Glu | Gly | Thr | Val | Glu | Ala | Pro | Gln | Val | Ile | | | |
| | 1090 | | | | | 1095 | | | | 1100 | | | | | | | | |
| Val | Pro | Gly | Gly | Ser | Tyr | Val | Arg | Ser | Gly | Glu | Leu | Asn | Leu | Glu | Leu | | | |
| 1105 | | | | | 1110 | | | | 1115 | | | | | | 1120 | | | |
| Val | Asn | Thr | Thr | Gly | Thr | Gly | Tyr | Glu | Asn | His | Ala | Leu | Leu | Lys | Asn | | | |
| | | | | 1125 | | | | | 1130 | | | | | 1135 | | | | |
| Glu | Ala | Lys | Val | Pro | Leu | Met | Ser | Phe | Val | Ala | Ser | Ser | Asp | Glu | Ala | | | |
| | | | 1140 | | | | | 1145 | | | | | 1150 | | | | | |
| Ser | Ala | Glu | Ile | Ser | Asn | Leu | Ser | Val | Ser | Asp | Leu | Gln | Ile | His | Val | | | |
| | 1155 | | | | | 1160 | | | | 1165 | | | | | | | | |
| Ala | Thr | Pro | Glu | Ile | Glu | Glu | Asp | Thr | Tyr | Gly | His | Met | Gly | Asp | Trp | | | |
| | 1170 | | | | | 1175 | | | | 1180 | | | | | | | | |
| Ser | Glu | Ala | Lys | Ile | Gln | Asp | Gly | Thr | Leu | Val | Ile | Asn | Trp | Asn | Pro | | | |
| 1185 | | | | | 1190 | | | | 1195 | | | | | | 1200 | | | |
| Thr | Gly | Tyr | Arg | Leu | Asp | Pro | Gln | Lys | Ala | Gly | Ala | Leu | Val | Phe | Asn | | | |
| | | | 1205 | | | | | | 1210 | | | | | 1215 | | | | |
| Ala | Leu | Trp | Glu | Glu | Gly | Ala | Val | Leu | Ser | Ala | Leu | Lys | Asn | Ala | Arg | | | |
| | | | 1220 | | | | | 1225 | | | | | 1230 | | | | | |
| Phe | Ala | His | Asn | Leu | Thr | Ala | Gln | Arg | Met | Glu | Phe | Asp | Tyr | Ser | Thr | | | |
| | 1235 | | | | | 1240 | | | | | | 1245 | | | | | | |
| Asn | Val | Trp | Gly | Phe | Ala | Phe | Gly | Gly | Phe | Arg | Thr | Leu | Ser | Ala | Glu | | | |
| | 1250 | | | | | 1255 | | | | | 1260 | | | | | | | |
| Asn | Leu | Val | Ala | Ile | Asp | Gly | Tyr | Lys | Gly | Ala | Tyr | Gly | Gly | Ala | Ser | | | |
| 1265 | | | | | 1270 | | | | 1275 | | | | | | 1280 | | | |
| Ala | Gly | Val | Asp | Ile | Gln | Leu | Met | Glu | Asp | Phe | Val | Leu | Gly | Val | Ser | | | |
| | | | 1285 | | | | | | 1290 | | | | | 1295 | | | | |
| Gly | Ala | Ala | Phe | Leu | Gly | Lys | Met | Asp | Ser | Gln | Lys | Phe | Asp | Ala | Glu | | | |
| | | | 1300 | | | | | 1305 | | | | | 1310 | | | | | |
| Val | Ser | Arg | Lys | Gly | Val | Val | Gly | Ser | Val | Tyr | Thr | Gly | Phe | Leu | Ala | | | |
| | | 1315 | | | | | 1320 | | | | | 1325 | | | | | | |
| Gly | Ser | Trp | Phe | Phe | Lys | Gly | Gln | Tyr | Ser | Leu | Gly | Glu | Thr | Gln | Asn | | | |
| | 1330 | | | | | 1335 | | | | | 1340 | | | | | | | |

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Asp Met Lys Thr Arg Tyr Gly Val Leu Gly Glu Ser Ser Ala Ser Trp
 1345 1350 1355 1360
 Thr Ser Arg Gly Val Leu Ala Asp Ala Leu Val Glu Tyr Arg Ser Leu
 1365 1370 1375
 Val Gly Pro Val Arg Pro Thr Phe Tyr Ala Leu His Phe Asn Pro Tyr
 1380 1385 1390
 Val Glu Val Ser Tyr Ala Ser Met Lys Phe Pro Gly Phe Thr Glu Gln
 1395 1400 1405
 Gly Arg Glu Ala Arg Ser Phe Glu Asp Ala Ser Leu Thr Asn Ile Thr
 1410 1415 1420
 Ile Pro Leu Gly Met Lys Phe Glu Leu Ala Phe Ile Lys Gly Gln Phe
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 Ser Glu Val Asn Ser Leu Gly Ile Ser Tyr Ala Trp Glu Ala Tyr Arg
 1445 1450 1455
 Lys Val Glu Gly Ala Val Gln Leu Leu Glu Ala Gly Phe Asp Trp
 1460 1465 1470
 Glu Gly Ala Pro Met Asp Leu Pro Arg Gln Glu Leu Arg Val Ala Leu
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 Glu Asn Asn Thr Glu Trp Ser Ser Tyr Phe Ser Thr Val Leu Gly Leu
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 Glu Ala Asn Thr Gly Leu Arg Leu Ile Phe
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 35 40 45
 Asp Met Met Leu Ala Asp Asn Thr Glu Tyr Arg Ala Ala Asp Ser Val
 50 55 60
 Ser Phe Tyr Asp Phe Ser Thr Ser Ser Gly Leu Pro Arg Lys His Leu
 65 70 75 80
 Ser Ser Ser Ser Glu Ala Ser Pro Thr Thr Glu Gly Val Ser Ser Ser
 85 90 95
 Ser Ser Gly Glu Asn Thr Glu Asn Ser Gln Asp Ser Ala Pro Ser Ser
 100 105 110
 Gly Glu Thr Asp Lys Lys Thr Glu Glu Glu Leu Asp Asn Gly Gly Ile
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 Ile Tyr Ala Arg Glu Lys Leu Thr Ile Ser Glu Ser Gln Asp Ser Leu
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 Ser Asn Pro Ser Ile Glu Leu His Asp Asn Ser Phe Phe Phe Gly Glu
 145 150 155 160
 Gly Glu Val Ile Phe Asp His Arg Val Ala Leu Lys Asn Gly Gly Ala
 165 170 175
 Ile Tyr Gly Glu Lys Glu Val Val Phe Glu Asn Ile Lys Ser Leu Leu
 180 185 190
 Val Glu Val Asn Ile Ser Val Glu Lys Gly Gly Ser Val Tyr Ala Lys
 195 200 205

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0504.13E.04301

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Arg | Val | Ser | Leu | Glu | Asn | Val | Thr | Glu | Ala | Thr | Phe | Ser | Ser | Asn |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Gly | Gly | Glu | Gln | Gly | Gly | Gly | Gly | Ile | Tyr | Ser | Glu | Gln | Asp | Met | Leu |
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| Ile | Ser | Asp | Cys | Asn | Asn | Val | His | Phe | Gln | Gly | Asn | Ala | Ala | Gly | Ala |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Thr | Ala | Val | Lys | Gln | Cys | Leu | Asp | Glu | Glu | Met | Ile | Val | Leu | Leu | Thr |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Glu | Cys | Val | Asp | Ser | Leu | Ser | Glu | Asp | Thr | Leu | Asp | Ser | Thr | Pro | Glu |
| | 275 | | | | | | 280 | | | | | 285 | | | |
| Thr | Glu | Gln | Thr | Lys | Ser | Asn | Gly | Asn | Gln | Asp | Gly | Ser | Ser | Glu | Thr |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Lys | Asp | Thr | Gln | Val | Ser | Glu | Ser | Pro | Glu | Ser | Thr | Pro | Ser | Pro | Asp |
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| Asp | Val | Leu | Gly | Lys | Gly | Gly | Gly | Ile | Tyr | Thr | Glu | Lys | Ser | Leu | Thr |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Ile | Thr | Gly | Ile | Thr | Gly | Thr | Ile | Asp | Phe | Val | Ser | Asn | Ile | Ala | Thr |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Asp | Ser | Gly | Ala | Gly | Val | Phe | Thr | Lys | Glu | Asn | Leu | Ser | Cys | Thr | Asn |
| | 355 | | | | | 360 | | | | | | 365 | | | |
| Thr | Asn | Ser | Leu | Gln | Phe | Leu | Lys | Asn | Ser | Ala | Gly | Gln | His | Gly | Gly |
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| Gly | Ala | Tyr | Val | Thr | Gln | Thr | Met | Ser | Val | Thr | Asn | Thr | Thr | Ser | Glu |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Ser | Ile | Thr | Thr | Pro | Pro | Leu | Val | Gly | Glu | Val | Ile | Phe | Ser | Glu | Asn |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Thr | Ala | Lys | Gly | His | Gly | Gly | Gly | Ile | Cys | Thr | Asn | Lys | Leu | Ser | Leu |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Ser | Asn | Leu | Lys | Thr | Val | Thr | Leu | Thr | Lys | Asn | Ser | Ala | Lys | Glu | Ser |
| | 435 | | | | | | 440 | | | | | 445 | | | |
| Gly | Gly | Ala | Ile | Phe | Thr | Asp | Leu | Ala | Ser | Ile | Pro | Thr | Thr | Asp | Thr |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Pro | Glu | Ser | Ser | Thr | Pro | Ser | Ser | Ser | Ser | Pro | Ala | Ser | Thr | Pro | Glu |
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| Val | Val | Ala | Ser | Ala | Lys | Ile | Asn | Arg | Phe | Phe | Ala | Ser | Thr | Ala | Glu |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Pro | Ala | Ala | Pro | Ser | Leu | Thr | Glu | Ala | Glu | Ser | Asp | Gln | Thr | Asp | Gln |
| | | | 500 | | | | | 505 | | | | | 510 | | |
| Thr | Glu | Thr | Ser | Asp | Thr | Asn | Ser | Asp | Ile | Asp | Val | Ser | Ile | Glu | Asn |
| | 515 | | | | | 520 | | | | | | 525 | | | |
| Ile | Leu | Asn | Val | Ala | Ile | Asn | Gln | Asn | Thr | Ser | Ala | Lys | Lys | Gly | Gly |
| | 530 | | | | | 535 | | | | | 540 | | | | |
| Ala | Ile | Tyr | Gly | Lys | Lys | Ala | Lys | Leu | Ser | Arg | Ile | Asn | Asn | Leu | Glu |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 |
| Leu | Ser | Gly | Asn | Ser | Ser | Gln | Asp | Val | Gly | Gly | Gly | Leu | Cys | Leu | Thr |
| | | | | 565 | | | | | 570 | | | | | 575 | |
| Glu | Ser | Val | Glu | Phe | Asp | Ala | Ile | Gly | Ser | Leu | Leu | Ser | His | Tyr | Asn |
| | | | 580 | | | | | 585 | | | | | 590 | | |
| Ser | Ala | Ala | Lys | Glu | Gly | Gly | Val | Ile | His | Ser | Lys | Thr | Val | Thr | Leu |
| | 595 | | | | | | 600 | | | | | 605 | | | |
| Ser | Asn | Leu | Lys | Ser | Thr | Phe | Thr | Phe | Ala | Asp | Asn | Thr | Val | Lys | Ala |
| | 610 | | | | | 615 | | | | | 620 | | | | |
| Ile | Val | Glu | Ser | Thr | Pro | Glu | Ala | Pro | Glu | Glu | Ile | Pro | Pro | Val | Glu |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 |
| Gly | Glu | Glu | Ser | Thr | Ala | Thr | Glu | Asn | Pro | Asn | Ser | Asn | Thr | Glu | Gly |
| | | | | 645 | | | | | 650 | | | | | 655 | |
| Ser | Ser | Ala | Asn | Thr | Asn | Leu | Glu | Gly | Ser | Gln | Gly | Asp | Thr | Ala | Asp |

[illegible]

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 Leu Leu Gln Gly Val Ile Ser Tyr Gly Tyr Ile Lys His Asp Thr Val
 1585 1590 1595 1600
 Thr His Tyr Pro Thr Ile Arg Glu Arg Asn Gln Gly Glu Trp Glu Asp
 1605 1610 1615
 Leu Gly Trp Leu Thr Ala Leu Arg Val Ser Ser Val Leu Arg Thr Pro
 1620 1625 1630
 Ala Gln Gly Asp Thr Lys Arg Ile Thr Val Tyr Gly Glu Leu Glu Tyr
 1635 1640 1645
 Ser Ser Ile Arg Gln Lys Gln Phe Thr Glu Thr Glu Tyr Asp Pro Arg
 1650 1655 1660
 Tyr Phe Asp Asn Cys Thr Tyr Arg Asn Leu Ala Ile Pro Met Gly Leu
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 Ala Phe Glu Gly Glu Leu Ser Gly Asn Asp Ile Leu Met Tyr Asn Arg
 1685 1690 1695
 Phe Ser Val Ala Tyr Met Pro Ser Ile Tyr Arg Asn Ser Pro Thr Cys
 1700 1705 1710
 Lys Tyr Gln Val Leu Ser Ser Gly Glu Gly Gly Glu Ile Ile Cys Gly
 1715 1720 1725
 Val Pro Thr Arg Asn Ser Ala Arg Gly Glu Tyr Ser Thr Gln Leu Tyr
 1730 1735 1740
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 1765 1770 1775

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 35 40 45
 Gly Ala Glu Tyr Ile Val Ser Gly Asn Ala Ser Phe Thr Lys Phe Thr
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 Asn Ile Pro Thr Thr Asp Thr Thr Thr Pro Thr Asn Ser Asn Ser Ser
 65 70 75 80
 Ser Ser Ser Gly Glu Thr Ala Ser Val Ser Glu Asp Ser Asp Ser Thr
 85 90 95
 Thr Thr Thr Pro Asp Pro Lys Gly Gly Gly Ala Phe Tyr Asn Ala His
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 Ser Gly Val Leu Ser Phe Met Thr Arg Ser Gly Thr Glu Gly Ser Leu
 115 120 125
 Thr Leu Ser Glu Ile Lys Met Thr Gly Glu Gly Gly Ala Ile Phe Ser
 130 135 140
 Gln Gly Glu Leu Leu Phe Thr Asp Leu Thr Ser Leu Thr Ile Gln Asn
 145 150 155 160
 Asn Leu Ser Gln Leu Ser Gly Gly Ala Ile Phe Gly Gly Ser Thr Ile
 165 170 175
 Ser Leu Ser Gly Ile Thr Lys Ala Thr Phe Ser Cys Asn Ser Ala Glu
 180 185 190
 Val Pro Ala Pro Val Lys Lys Pro Thr Glu Pro Lys Ala Gln Thr Ala

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | | 195 | | | | 200 | | | | | 205 | | | | |
| Ser | Glu | Thr | Ser | Gly | Ser | Ser | Ser | Ser | Ser | Gly | Asn | Asp | Ser | Val | Ser |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Ser | Pro | Ser | Ser | Ser | Arg | Ala | Glu | Pro | Ala | Ala | Ala | Asn | Leu | Gln | Ser |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| His | Phe | Ile | Cys | Ala | Thr | Ala | Thr | Pro | Ala | Ala | Gln | Thr | Asp | Thr | Glu |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Thr | Ser | Thr | Pro | Ser | His | Lys | Pro | Gly | Ser | Gly | Gly | Ala | Ile | Tyr | Ala |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Lys | Gly | Asp | Leu | Thr | Ile | Ala | Asp | Ser | Gln | Glu | Val | Leu | Phe | Ser | Ile |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Asn | Lys | Ala | Thr | Lys | Asp | Gly | Gly | Ala | Ile | Phe | Ala | Glu | Lys | Asp | Val |
| 290 | | | | | | 295 | | | | | 300 | | | | |
| Ser | Phe | Glu | Asn | Ile | Thr | Ser | Leu | Lys | Val | Gln | Thr | Asn | Gly | Ala | Glu |
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| Glu | Lys | Gly | Gly | Ala | Ile | Tyr | Ala | Lys | Gly | Asp | Leu | Ser | Ile | Gln | Ser |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Ser | Lys | Gln | Ser | Leu | Phe | Asn | Ser | Asn | Tyr | Ser | Lys | Gln | Gly | Gly | Gly |
| | | | 340 | | | | | 345 | | | | 350 | | | |
| Ala | Leu | Tyr | Val | Glu | Gly | Gly | Ile | Asn | Phe | Gln | Asp | Leu | Glu | Glu | Ile |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Arg | Ile | Lys | Tyr | Asn | Lys | Ala | Gly | Thr | Phe | Glu | Thr | Lys | Lys | Ile | Thr |
| 370 | | | | | | 375 | | | | | 380 | | | | |
| Leu | Pro | Ser | Leu | Lys | Ala | Gln | Ala | Ser | Ala | Gly | Asn | Ala | Asp | Ala | Trp |
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| Ala | Ser | Ser | Ser | Pro | Gln | Ser | Gly | Ser | Gly | Ala | Thr | Thr | Val | Ser | Asp |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Ser | Gly | Asp | Ser | Ser | Ser | Gly | Ser | Asp | Ser | Asp | Thr | Ser | Glu | Thr | Val |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Pro | Val | Thr | Ala | Lys | Gly | Gly | Gly | Leu | Tyr | Thr | Asp | Lys | Asn | Leu | Ser |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Ile | Thr | Asn | Ile | Thr | Gly | Ile | Ile | Glu | Ile | Ala | Asn | Asn | Lys | Ala | Thr |
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| Asp | Val | Gly | Gly | Gly | Ala | Tyr | Val | Lys | Gly | Thr | Leu | Thr | Cys | Glu | Asn |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Ser | His | Arg | Leu | Gln | Phe | Leu | Lys | Asn | Ser | Ser | Asp | Lys | Gln | Gly | Gly |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Gly | Ile | Tyr | Gly | Glu | Asp | Asn | Ile | Thr | Leu | Ser | Asn | Leu | Thr | Gly | Lys |
| | | | 500 | | | | | 505 | | | | | 510 | | |
| Thr | Leu | Phe | Gln | Glu | Asn | Thr | Ala | Lys | Glu | Glu | Gly | Gly | Gly | Leu | Phe |
| | | 515 | | | | | 520 | | | | | 525 | | | |
| Ile | Lys | Gly | Thr | Asp | Lys | Ala | Leu | Thr | Met | Thr | Gly | Leu | Asp | Ser | Phe |
| | | 530 | | | | 535 | | | | | 540 | | | | |
| Cys | Leu | Ile | Asn | Asn | Thr | Ser | Glu | Lys | His | Gly | Gly | Gly | Ala | Phe | Val |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 |
| Thr | Lys | Glu | Ile | Ser | Gln | Thr | Tyr | Thr | Ser | Asp | Val | Glu | Thr | Ile | Pro |
| | | | | 565 | | | | | 570 | | | | | 575 | |
| Gly | Ile | Thr | Pro | Val | His | Gly | Glu | Thr | Val | Ile | Thr | Gly | Asn | Lys | Ser |
| | | | 580 | | | | | 585 | | | | | 590 | | |
| Thr | Gly | Gly | Asn | Gly | Gly | Gly | Val | Cys | Thr | Lys | Arg | Leu | Ala | Leu | Ser |
| | | 595 | | | | 600 | | | | | | 605 | | | |
| Asn | Leu | Gln | Ser | Ile | Ser | Ile | Ser | Gly | Asn | Ser | Ala | Ala | Glu | Asn | Gly |
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| Gly | Gly | Ala | His | Thr | Cys | Pro | Asp | Ser | Phe | Pro | Thr | Ala | Asp | Thr | Ala |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 |
| Glu | Gln | Pro | Ala | Ala | Ala | Ser | Ala | Ala | Thr | Ser | Thr | Pro | Lys | Ser | Ala |
| | | | | 645 | | | | | 650 | | | | | 655 | |

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| | | | | | | | | | | | | | | | | | |
|------|------|-----|------|------|-----|------|-----|------|------|-----|------|------|-----|------|------|-----|--|
| Pro | Val | Ser | Thr | Ala | Leu | Ser | Thr | Pro | Ser | Ser | Ser | Thr | Val | Ser | Ser | | |
| | | | 660 | | | | | 665 | | | | | 670 | | | | |
| Leu | Thr | Leu | Leu | Ala | Ala | Ser | Ser | Gln | Ala | Ser | Pro | Ala | Thr | Ser | Asn | | |
| | | 675 | | | | | 680 | | | | | 685 | | | | | |
| Lys | Glu | Thr | Gln | Asp | Pro | Asn | Ala | Asp | Thr | Asp | Leu | Leu | Ile | Asp | Tyr | | |
| | 690 | | | | | 695 | | | | | 700 | | | | | | |
| Val | Val | Asp | Thr | Thr | Ile | Ser | Lys | Asn | Thr | Ala | Lys | Lys | Gly | Gly | Gly | | |
| 705 | | | | | 710 | | | | | 715 | | | | | | 720 | |
| Ile | Tyr | Ala | Lys | Lys | Ala | Lys | Met | Ser | Arg | Ile | Asp | Gln | Leu | Asn | Ile | | |
| | | | 725 | | | | | 730 | | | | | | 735 | | | |
| Ser | Glu | Asn | Ser | Ala | Thr | Glu | Ile | Gly | Gly | Gly | Ile | Cys | Cys | Lys | Glu | | |
| | | 740 | | | | | | 745 | | | | 750 | | | | | |
| Ser | Leu | Glu | Leu | Asp | Ala | Leu | Val | Ser | Leu | Ser | Val | Thr | Glu | Asn | Leu | | |
| | 755 | | | | | 760 | | | | | 765 | | | | | | |
| Val | Gly | Lys | Glu | Gly | Gly | Gly | Leu | His | Ala | Lys | Thr | Val | Asn | Ile | Ser | | |
| | 770 | | | | | 775 | | | | | 780 | | | | | | |
| Asn | Leu | Lys | Ser | Gly | Phe | Ser | Phe | Ser | Asn | Asn | Lys | Ala | Asn | Ser | Ser | | |
| 785 | | | | 790 | | | | | 795 | | | | | | 800 | | |
| Ser | Thr | Gly | Val | Ala | Thr | Thr | Ala | Ser | Ala | Pro | Ala | Ala | Ala | Ala | Ala | | |
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| Ser | Leu | Gln | Ala | Ala | Ala | Ala | Ala | Ala | Pro | Ser | Ser | Pro | Ala | Thr | Pro | | |
| | | 820 | | | | | | 825 | | | | | 830 | | | | |
| Thr | Tyr | Ser | Gly | Val | Val | Gly | Gly | Ala | Ile | Tyr | Gly | Glu | Lys | Val | Thr | | |
| | 835 | | | | | 840 | | | | | | 845 | | | | | |
| Phe | Ser | Gln | Cys | Ser | Gly | Thr | Cys | Gln | Phe | Ser | Gly | Asn | Gln | Ala | Ile | | |
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| Asp | Asn | Asn | Pro | Ser | Gln | Ser | Ser | Leu | Asn | Val | Gln | Gly | Gly | Ala | Ile | | |
| 865 | | | | 870 | | | | | 875 | | | | | | 880 | | |
| Tyr | Ala | Lys | Thr | Ser | Leu | Ser | Ile | Gly | Ser | Ser | Asp | Ala | Gly | Thr | Ser | | |
| | | | 885 | | | | | 890 | | | | | | 895 | | | |
| Tyr | Ile | Phe | Ser | Gly | Asn | Ser | Val | Ser | Thr | Gly | Lys | Ser | Gln | Thr | Thr | | |
| | 900 | | | | | | | 905 | | | | | 910 | | | | |
| Gly | Gln | Ile | Ala | Gly | Gly | Ala | Ile | Tyr | Ser | Pro | Thr | Val | Thr | Leu | Asn | | |
| | 915 | | | | | 920 | | | | | | 925 | | | | | |
| Cys | Pro | Ala | Thr | Phe | Ser | Asn | Asn | Thr | Ala | Ser | Ile | Ala | Thr | Pro | Lys | | |
| | 930 | | | | | 935 | | | | | 940 | | | | | | |
| Thr | Ser | Ser | Glu | Asp | Gly | Ser | Ser | Gly | Asn | Ser | Ile | Lys | Asp | Thr | Ile | | |
| 945 | | | | 950 | | | | | 955 | | | | | | 960 | | |
| Gly | Gly | Ala | Ile | Ala | Gly | Thr | Ala | Ile | Thr | Leu | Ser | Gly | Val | Ser | Arg | | |
| | | | 965 | | | | | 970 | | | | | | 975 | | | |
| Phe | Ser | Gly | Asn | Thr | Ala | Asp | Leu | Gly | Ala | Ala | Ile | Gly | Thr | Leu | Ala | | |
| | | 980 | | | | | | 985 | | | | 990 | | | | | |
| Asn | Ala | Asn | Thr | Pro | Ser | Ala | Thr | Ser | Gly | Ser | Gln | Asn | Ser | Ile | Thr | | |
| | 995 | | | | | 1000 | | | | | | 1005 | | | | | |
| Glu | Lys | Ile | Thr | Leu | Glu | Asn | Gly | Ser | Phe | Ile | Phe | Glu | Arg | Asn | Gln | | |
| | 1010 | | | | | 1015 | | | | | 1020 | | | | | | |
| Ala | Asn | Lys | Arg | Gly | Ala | Ile | Tyr | Ser | Pro | Ser | Val | Ser | Ile | Lys | Gly | | |
| 1025 | | | | 1030 | | | | | 1035 | | | | | | 1040 | | |
| Asn | Asn | Ile | Thr | Phe | Asn | Gln | Asn | Thr | Ser | Thr | His | Asp | Gly | Ser | Ala | | |
| | | | 1045 | | | | | 1050 | | | | | | 1055 | | | |
| Ile | Tyr | Phe | Thr | Lys | Asp | Ala | Thr | Ile | Glu | Ser | Leu | Gly | Ser | Val | Leu | | |
| | 1060 | | | | | | | 1065 | | | | | | 1070 | | | |
| Phe | Thr | Gly | Asn | Asn | Val | Thr | Ala | Thr | Gln | Ala | Ser | Ser | Ala | Thr | Ser | | |
| | 1075 | | | | | 1080 | | | | | | 1085 | | | | | |
| Gly | Gln | Asn | Thr | Asn | Thr | Ala | Asn | Tyr | Gly | Ala | Ala | Ile | Phe | Gly | Asp | | |
| | 1090 | | | | | 1095 | | | | | 1100 | | | | | | |
| Pro | Gly | Thr | Thr | Gln | Ser | Ser | Gln | Thr | Asp | Ala | Ile | Leu | Thr | Leu | Leu | | |

1105 1110 1115 1120
 Ala Ser Ser Gly Asn Ile Thr Phe Ser Asn Asn Ser Leu Gln Asn Asn
 1125 1130 1135
 Gln Gly Asp Thr Pro Ala Ser Lys Phe Cys Ser Ile Ala Gly Tyr Val
 1140 1145 1150
 Lys Leu Ser Leu Gln Ala Ala Lys Gly Lys Thr Ile Ser Phe Phe Asp
 1155 1160 1165
 Cys Val His Thr Ser Thr Lys Lys Thr Gly Ser Thr Gln Asn Val Tyr
 1170 1175 1180
 Glu Thr Leu Asp Ile Asn Lys Glu Glu Asn Ser Asn Pro Tyr Thr Gly
 1185 1190 1195 1200
 Thr Ile Val Phe Ser Ser Glu Leu His Glu Asn Lys Ser Tyr Ile Pro
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 Gln Asn Ala Ile Leu His Asn Gly Thr Leu Val Leu Lys Glu Lys Thr
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 Glu Leu His Val Val Ser Phe Glu Gln Lys Glu Gly Ser Lys Leu Ile
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 Met Glu Pro Gly Ala Val Leu Ser Asn Gln Asn Ile Ala Asn Gly Ala
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 Leu Ala Ile Asn Gly Leu Thr Ile Asp Leu Ser Ser Met Gly Thr Pro
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 Gln Ala Gly Glu Ile Phe Ser Pro Pro Glu Leu Arg Ile Val Ala Thr
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 Thr Ser Ser Ala Ser Gly Gly Ser Gly Val Ser Ser Ser Ile Pro Thr
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 Asn Pro Lys Arg Ile Ser Ala Ala Val Pro Ser Gly Ser Ala Ala Thr
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 Thr Pro Thr Met Ser Glu Asn Lys Val Phe Leu Thr Gly Asp Leu Thr
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 Asp Leu Asp Val Pro Leu Ile Lys Leu Pro Thr Asn Thr Ser Asp Val
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 Gln Val Tyr Asp Leu Thr Leu Ser Gly Asp Leu Phe Pro Gln Lys Gly
 1380 1385 1390
 Tyr Met Gly Thr Trp Thr Leu Asp Ser Asn Pro Gln Thr Gly Lys Leu
 1395 1400 1405
 Gln Ala Arg Trp Thr Phe Asp Thr Tyr Arg Arg Trp Val Tyr Ile Pro
 1410 1415 1420
 Arg Asp Asn His Phe Tyr Ala Asn Ser Ile Leu Gly Ser Gln Asn Ser
 1425 1430 1435 1440
 Met Ile Val Val Lys Gln Gly Leu Ile Asn Asn Met Leu Asn Asn Ala
 1445 1450 1455
 Arg Phe Asp Asp Ile Ala Tyr Asn Asn Phe Trp Val Ser Gly Val Gly
 1460 1465 1470
 Thr Phe Leu Ala Gln Gln Gly Thr Pro Leu Ser Glu Glu Phe Ser Tyr
 1475 1480 1485
 Tyr Ser Arg Gly Thr Ser Val Ala Ile Asp Ala Lys Pro Arg Gln Asp
 1490 1495 1500
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 Ile Lys Lys Met His Asn Tyr Phe His Lys Gly Ser Glu Tyr Ser Tyr
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 Gln Ala Ser Val Tyr Gly Gly Lys Phe Leu Tyr Phe Leu Leu Asn Lys
 1540 1545 1550
 Gln His Gly Trp Ala Leu Pro Phe Leu Ile Gln Gly Val Val Ser Tyr
 1555 1560 1565

00044330
 100240 " 224860

Gly His Ile Lys His Asp Thr Thr Thr Leu Tyr Pro Ser Ile His Glu
 1570 1575 1580
 Arg Asn Lys Gly Asp Trp Glu Asp Leu Gly Trp Leu Ala Asp Leu Arg
 1585 1590 1595 1600
 Ile Ser Met Asp Leu Lys Glu Pro Ser Lys Asp Ser Ser Lys Arg Ile
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 Thr Val Tyr Gly Glu Leu Glu Tyr Ser Ser Ile Arg Gln Lys Gln Phe
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 Thr Glu Ile Asp Tyr Asp Pro Arg His Phe Asp Asp Cys Ala Tyr Arg
 1635 1640 1645
 Asn Leu Ser Leu Pro Val Gly Cys Ala Val Glu Gly Ala Ile Met Asn
 1650 1655 1660
 Cys Asn Ile Leu Met Tyr Asn Lys Leu Ala Leu Ala Tyr Met Pro Ser
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 Ile Tyr Arg Asn Asn Pro Val Cys Lys Tyr Arg Val Leu Ser Ser Asn
 1685 1690 1695
 Glu Ala Gly Gln Val Ile Cys Gly Val Pro Thr Arg Thr Ser Ala Arg
 1700 1705 1710
 Ala Glu Tyr Ser Thr Gln Leu Tyr Leu Gly Pro Phe Trp Thr Leu Tyr
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 Gly Asn Tyr Thr Ile Asp Val Gly Met Tyr Thr Leu Ser Gln Met Thr
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 Ser Cys Gly Ala Arg Met Ile Phe
 1745 1750

<210> 181
 <211> 2601
 <212> DNA
 <213> Chlamydia

<400> 181
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 ctccctacta aaaatcctaa tcatgtcgct tgtacatttt ttgaggactg taccatggag 120
 agcctctttc ctgctctttg tgctcatgca tcacaagacg atccttttgta tgtacttgga 180
 aattcctact gttggttcgt atctaaactc catatcacgg accccaaaga ggctcttttt 240
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 aatggtagca tgagtttctg tcgaaatcat gctgaaggct ctggaggagc catctctgcg 420
 gatgcctttt ctctacagca caactatctt ttcacagctt ttgaagagaa ttcttctaaa 480
 ggaaatggcg gagccattca ggctcaaacc ttctctttat ctagaaatgt gtcgcctatt 540
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 agcgtgactt ctcccacccc agccaccgca tctcctttag ttattcagac aagtgc aaac 1140
 cgttcagtga ttttctcgag cgaacgtctt tctgaagaag aaaaaactcc tgataacctc 1200
 acttcccaac tacagcagcc tatcgactg aaatccggac gcttagtttt aaaagatcgc 1260
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 caaaacaata ttcctctcct tactctccct aaagagcaat ctcatttaca tcttctgat 1560

| | | | | | | |
|------------|------------|-------------|-------------|-------------|------------|------|
| gggaacctct | cttctcactt | tgatatacaa | ggagattgga | ctttttcttg | gaaagattct | 1620 |
| gatgaagggc | attctctgat | tgctaattgg | acgcctaaaa | actatgtgcc | tcatccagaa | 1680 |
| cgtcaatcta | cactcgttgc | gaacactctt | tggaacacct | attccgatat | gcaagctgtg | 1740 |
| cagtcgatga | ttaatacaac | agcgacacga | ggagcctatc | tatttggaac | gtggggatct | 1800 |
| gctgtttcta | atttattcta | tgttcacgac | agctctggga | aacctatcga | taattggcat | 1860 |
| catagaagcc | ttggctacct | attcgggtatc | agtactcaca | gtttagatga | ccattctttc | 1920 |
| tgcttggtcg | caggacaatt | actcgggaaa | tcgtccgatt | cctttattac | gtctacagaa | 1980 |
| acgacctcct | atatagctac | tgtacaagcg | caactcgcta | cctctctaata | gaaaatctct | 2040 |
| gcacaggcat | gctacaatga | aagtatccat | gagctaaaaa | caaaatatcg | ctccttctct | 2100 |
| aaagaaggat | tcggatcctg | gcatagcgtt | gcagtatccg | gagaagtgtg | cgcacgatt | 2160 |
| cctattgtat | ccaatggttc | cggactgttc | agctccttct | ctattttctc | taaactgcaa | 2220 |
| ggattttcag | gaacacagga | cggttttgag | gagagtccgg | gagagattcg | gtccttttct | 2280 |
| gccagctctt | tcagaaatat | ttcacttcct | ataggaataa | catttgaaaa | aaaatcccaa | 2340 |
| aaaacacgaa | cctactatta | ctttctagga | gcctacatcc | aagacctgaa | acgtgatgtg | 2400 |
| gaatcgggac | ctgtagtggt | actcaaaaat | gccgtctcct | gggatgctcc | tatggcgaac | 2460 |
| ttggattcac | gagcctacat | gttcgggctt | acgaatcaaa | gagctctaca | cagacttcag | 2520 |
| acgctgttaa | atgtgtcttg | tgtgtgcgt | gggcaaaagcc | atagttactc | cctggatctg | 2580 |
| gggaccactt | acaggttcta | g | | | | 2601 |

<210> 182
 <211> 3021
 <212> DNA
 <213> Chlamydia

| | | | | | | |
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| atggctagca | tgactgggtg | acagcaaatg | ggtcgggatt | caagcttggt | accgcatcac | 60 |
| catcaccatc | acatgattcc | tcaaggaatt | tacgatgggg | agacgttaac | tgtatcattt | 120 |
| ccctatactg | ttataggaga | tccgagtggg | actactgttt | tttctgcagg | agagttaaca | 180 |
| ttaaaaaatc | ttgacaattc | tattgcagct | ttgcctttta | gttgtttttg | gaacttatta | 240 |
| gggagtttta | ctgttttagg | gagaggacac | tcgttgactt | tcgagaacat | acggacttct | 300 |
| acaaatgggg | cagctctaag | taatagcgct | gctgatggac | tgtttactat | tgagggtttt | 360 |
| aaagaattat | cctttttcaa | ttgcaattca | ttacttgccg | tactgcctgc | tgcaacgact | 420 |
| aataagggta | gccagactcc | gacgacaaca | tctacaccgt | ctaattggtac | tatttattct | 480 |
| aaaacagatc | ttttgttact | caataatgag | aagttctcat | tctatagtaa | tttagtctct | 540 |
| ggagatgggg | gagctataga | tgctaagagc | ttaacggttc | aaggaattag | caagctttgt | 600 |
| gtcttccaag | aaaatactgc | tcaagctgat | gggggagctt | gtcaagtagt | caccagtttc | 660 |
| tctgctatgg | ctaacgaggc | tcctattgcc | tttgtagcga | atgttgagc | agtaagaggg | 720 |
| ggagggattg | ctgctgttca | ggatggggcag | cagggaggtg | catcatctac | ttcaacagaa | 780 |
| gatccagtag | taagtttttc | cagaaatact | gcggtagagt | ttgatgggaa | cgtagcccga | 840 |
| gtaggaggag | ggattttactc | ctacgggaac | gttgctttcc | tgaataatgg | aaaaaccttg | 900 |
| tttctcaaca | atgttgcttc | tctgttttac | attgctgcta | agcaaccaac | aagtggacag | 960 |
| gcttctaata | cgagtaataa | ttacggagat | ggaggagcta | tcttctgtaa | gaatgggtgcg | 1020 |
| caagcaggat | ccaataactc | tggtatcagtt | tcctttgatg | gagagggagt | agttttcttt | 1080 |
| agtagcaatg | tagctgctgg | gaaaggggga | gctatttatg | ccaaaaagct | ctcggttgct | 1140 |
| aactgtggcc | ctgtacaatt | tttaaggaat | atcgctaata | atgggtggagc | gatttattta | 1200 |
| ggagaaatctg | gagagctcag | tttatctgct | gattatggag | atattatttt | cgatgggaat | 1260 |
| cttaaaaagaa | cagccaaaaga | gaatgctgcc | gatgttaatg | gcgtaactgt | gtcctcacia | 1320 |
| gccattttcga | tgggatcggg | agggaaaata | acgacattaa | gagctaaagc | agggcatcag | 1380 |
| attctcttta | atgatcccat | cgagatggca | aacggaaaata | accagccagc | gcagtccttc | 1440 |
| aaacttctaa | aaatttaacga | tggtgaagga | tacacagggg | atattgtttt | tgctaattgga | 1500 |
| agcagtactt | tgtacaaaaa | tgttacgata | gagcaaggaa | ggattgttct | tcgtgaaaag | 1560 |
| gcaaaattat | cagtgaattc | tctaagtcag | acaggtggga | gtctgtatat | ggaagctggg | 1620 |
| agtacattgg | attttgtaac | tcacacaacca | ccacaacagc | ctcctgccgc | taatcagttg | 1680 |
| atcacgcttt | ccaatctgca | tttgtctctt | tcttctttgt | tagcaaacaa | tgcagttacg | 1740 |
| aatcctccta | ccaatcctcc | agcgcaagat | tctcatcctg | cagtcattgg | tagcacaact | 1800 |
| gctggttctg | ttacaattag | tgggcctatc | ttttttgagg | atttgatga | tacagcttat | 1860 |
| gataggtatg | attggctag | ttctaatacaa | aaaatcaatg | tcctgaaatt | acagttaggg | 1920 |

| | | | | | | |
|------------|-------------|-------------|-------------|------------|------------|------|
| actaagcccc | cagctaatagc | cccatcagat | ttgactctag | ggaatgagat | gcctaagtat | 1980 |
| ggctatcaag | gaagctggaa | gcttgcggtg | gatcctaata | cagcaaataa | tggtccttat | 2040 |
| actctgaaa | ctacatggac | taaaactggg | tataatcctg | ggcctgagcg | agtagcttct | 2100 |
| ttggttccaa | atagtttatg | gggatccatt | ttagatatac | gatctgcgca | ttcagcaatt | 2160 |
| caagcaagt | tggatggg | ctcttattgt | cgaggattat | gggtttctgg | agtttcgaat | 2220 |
| ttcttctatc | atgaccgcga | tgcttttaggt | cagggatatac | ggtatattag | tgggggttat | 2280 |
| tccttaggag | caaaactccta | ctttggatca | tcgatgtttg | gtctagcatt | taccgaagta | 2340 |
| tttggtagat | ctaaagatta | tgtagtgtgt | cgttccaatc | atcatgcttg | cataggatcc | 2400 |
| gtttatctat | ctacccaaca | agctttatgt | ggatcctatt | tgttcggaga | tgcgtttatc | 2460 |
| cgtgctagct | acgggttttg | gaatcagcat | atgaaaacct | catatacatt | tgcagaggag | 2520 |
| agcgatgttc | gttgggataa | taactgtctg | gctggagaga | ttggagcggg | attaccgatt | 2580 |
| gtgattactc | catctaagct | ctatttgaat | gagttgcgtc | ctttcgtgca | agctgagttt | 2640 |
| tcttatgccg | atcatgaatc | ttttacagag | gaaggcgatc | aagctcgggc | attcaagagc | 2700 |
| ggacatctcc | taaatctatc | agttcctggt | ggagtgaagt | ttgatcgatg | ttctagtaca | 2760 |
| catcctaata | aatatagctt | tatggcggct | tatatctgtg | atgcttatcg | caccatctct | 2820 |
| ggtactgaga | caacgctcct | atcccatcaa | gagacatgga | caacagatgc | ctttcattta | 2880 |
| gcaagacatg | gagttgtggt | tagaggatct | atgtatgctt | ctctaacaag | taatatagaa | 2940 |
| gtatatggcc | atggaagata | tgagtatcga | gatgcttctc | gaggctatgg | tttgagtgca | 3000 |
| ggaagtaaa | tccggttcta | a | | | | 3021 |

<210> 183

<211> 2934

<212> DNA

<213> Chlamydia

<400> 183

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| atggctagca | tgactggtgg | acagcaaagt | ggtcgggatt | caagcttggg | accgagctcg | 60 |
| gatccacatc | accatcacca | tacaggacta | gctagagagg | ttccttctag | aatctttctt | 120 |
| atgcccaact | cagttccaga | tctacgaaa | gagtcgctat | caaataaaat | tagtttgaca | 180 |
| ggagacactc | acaatctcac | taactgctat | ctcgataaoc | tacgctacat | actggctatt | 240 |
| ctacaaaaaa | ctcccaatga | aggagctgct | gtcacaataa | cagattacct | aagctttttt | 300 |
| gatacacaaa | aagaaggtat | ttattttgca | aaaaatctca | cccctgaaag | tgggtggtgcg | 360 |
| attggttatg | cgagtcccaa | ttctcctacc | gtggagattc | gtgatacaat | aggtcctgta | 420 |
| atctttgaaa | ataataacttg | ttgcagacta | tttacctgga | gaaatcctta | tgctgctgat | 480 |
| aaaataagag | aaggcggagc | cattcatgct | caaaatcttt | acataaatca | taatcatgat | 540 |
| gtggtcggat | ttatgaagaa | cttttcttat | gtccaaggag | gagccattag | taccgctaata | 600 |
| acctttgttg | tgagcgagaa | tcagtcttgt | tttctcttta | tggacaacat | ctgtattcaa | 660 |
| actaatacag | caggaaaagg | tggcgctatc | tatgctggaa | cgagcaattc | ttttgagagt | 720 |
| aataactgcg | atctcttctt | catcaataac | gcctgtttgt | caggaggagc | gatcttctcc | 780 |
| cctatctggt | ctctaacagg | aaatcgtggt | aacatcggtt | tctataacaa | tcgctgcttt | 840 |
| aaaaatgtag | aaacagcttc | ttcagaagct | tctgatggag | gagcaattaa | agtaactact | 900 |
| cgcctagatg | ttacaggcaa | tcgtggtagg | atctttttta | gtgacaatat | cacaaaaaat | 960 |
| tatggcggag | ctattttacgc | tctgtagttt | accctagtgg | ataatggccc | tacctacttt | 1020 |
| ataaacaata | tcgccaataa | taaggggggc | gctatctata | tagacggaac | cagtaactcc | 1080 |
| aaaatttctg | cgcaccgcca | tgctattatt | tttaatgaaa | atattgtgac | taatgtaact | 1140 |
| aatgcaaatg | gtaccagtac | gtcagctaata | cctcctagaa | gaaatgcaat | aacagtagca | 1200 |
| agctcctctg | gtgaaattct | attaggagca | gggagtagcc | aaaatttaata | tttttatgat | 1260 |
| cctattgaag | ttagcaatgc | aggggtctct | gtgtccttca | ataaggaagc | tgatcaaaca | 1320 |
| ggctctgtga | tattttcagg | agctactggt | attttcgcag | attttcatca | acgcaattta | 1380 |
| caaacaaaaa | cacctgcacc | ccttactctc | agtaatgggt | ttctatgtat | cgaagatcat | 1440 |
| gctcagctta | cagtgaatcg | attcacacaa | actgggggtg | ttgtttctct | tgggaatgga | 1500 |
| gcagttctga | gttgctataa | aaatggtaca | ggagattctg | ctagcaatgc | ctctataaca | 1560 |
| ctgaagcata | ttggattgaa | tctttcttcc | attctgaaaa | gtgggtgctga | gattccttta | 1620 |
| ttgtgggtag | agcctacaaa | taacagcaat | aactatacag | cagatactgc | agctaccttt | 1680 |
| tcattaagt | atgtaaaact | ctcactcatt | gatgactacg | ggaactctcc | ttatgaatcc | 1740 |
| acagatctga | cccatgctct | gtcatcacag | cctatgctat | ctatttctga | agctagcgat | 1800 |
| aaccagctac | aatcagaaaa | tatagatttt | tcgggactaa | atgtccctca | ttatggatgg | 1860 |

| | | | | | | |
|------------|------------|-------------|-------------|------------|------------|------|
| caaggacttt | ggacttgggg | ctggggcaaaa | actcaagatc | cagaaccagc | atcttcagca | 1920 |
| acaatcactg | atccacaaaa | agccaataga | tttcatagaa | ccttactact | aacatggctt | 1980 |
| cctgccgggt | atgttcctag | cccaaaacac | agaagtcccc | tcatagctaa | caccttatgg | 2040 |
| gggaatatgc | tgcttgcaac | agaaagctta | aaaaatagtg | cagagctgac | acctagtggg | 2100 |
| catcctttct | ggggaattac | aggaggagga | ctaggcatga | tggtttacca | agatcctcga | 2160 |
| gaaaatcatc | ctggattcca | tatgcgctct | tccggatact | ctgcggggat | gatagcaggg | 2220 |
| cagacacaca | ccttctcatt | gaaattcagt | cagacctaca | ccaaactcaa | tgagcgttac | 2280 |
| gcaaaaaaca | acgtatcttc | taaaaattac | tcatgccaaag | gagaaatgct | cttctcattg | 2340 |
| caagaagggt | tcttgctgac | taaattagtt | gggctttaca | gctatggaga | ccataactgt | 2400 |
| caccatttct | atactcaagg | agaaaaatcta | acatctcaag | ggacgttccg | cagtcaaacg | 2460 |
| atgggaggtg | ctgtcttttt | tgatctccct | atgaaaccct | ttggatcaac | gcatatactg | 2520 |
| acagctccct | tttttaggtg | tcttggtatt | tattctagcc | tgtctcactt | tactgaggtg | 2580 |
| ggagcctatc | cgcgaagctt | ttctacaaag | actcctttga | tcaatgtcct | agtccctatt | 2640 |
| ggagttaaag | gtagctttat | gaatgctacc | cacagacctc | aagcctggac | tgtagaattg | 2700 |
| gcataccaac | ccgttctgta | tagacaagaa | ccagggatcg | cgacccagct | cctagccagt | 2760 |
| aaaggtattt | ggtttggtag | tggaaagccc | tcatcgcgtc | atgccatgtc | ctataaaatc | 2820 |
| tcacagcaaa | cacaaccttt | gagttgggtta | actctccatt | tccagtatca | tggattctac | 2880 |
| tcctcttcaa | ccttctgtaa | ttatctcaat | ggggaaattg | ctctgcgatt | ctag | 2934 |

<210> 184

<211> 2547

<212> DNA

<213> Chlamydia

<400> 184

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| atttctggaa | acaagggtag | agttgaattt | aaagacaaca | tagcaaacag | tctttatgtg | 120 |
| gaagaaactg | tagaaaaggt | tgaagaggta | gagccagctc | ctgagcaaaa | agacaataat | 180 |
| gagctttctt | tcttagggag | tgtagaacag | agttttatta | ctgcagctaa | tcaagctctt | 240 |
| ttcgcatctg | aagatgggga | tttatcacct | gagtcatcca | tttcttctga | agaacttgcg | 300 |
| aaaagaagag | agtgtgctgg | aggagctatt | tttgcaaaaac | gggttcgtat | tgtagataac | 360 |
| caagaggccg | ttgtattctc | gaataacttc | tctgatattt | atggcgggcg | cattttttaca | 420 |
| ggttctcttc | gagaagagga | taagtttagat | gggcaaatcc | ctgaagtctt | gatctcaggc | 480 |
| aatgcagggg | atgttggtttt | ttccggaaat | tcctcgaagc | gtgatgagca | tcttctcat | 540 |
| acagggtggg | gagccatttg | tactcaaaat | ttgacgattt | ctcagaatac | aggggaatgtt | 600 |
| ctgtttttata | acaacgtggc | ctgttcggga | ggagctgttc | gtatagagga | tcattggtaat | 660 |
| gttcttttag | aagcttttgg | aggagatatt | gtttttaaag | gaaattcttc | tttcagagca | 720 |
| caaggatccg | atgctatcta | ttttgcagg | aaagaatcgc | atattacagc | cctgaatgct | 780 |
| acggaaggac | atgctattgt | tttccacgac | gcattagttt | ttgaaaatct | aaaagaaagg | 840 |
| aaatctgctg | aagtattgtt | aatcaatagt | cgagaaaatc | cagggttacac | tggatctatt | 900 |
| cgatttttag | aagcagaaag | taaagttcct | caatgtattc | atgtacaaca | aggaagcctt | 960 |
| gagttgctaa | atggagctac | attatgtagt | tatggtttta | aacaagatgc | tggagctaag | 1020 |
| ttgggtattgg | ctgctggatc | taaactgaag | atttttagatt | caggaactcc | tgtacaagg | 1080 |
| catgctatca | gtaaacctga | agcagaaatc | gagtcattct | ctgaaccaga | gggtgcacat | 1140 |
| tctcttttga | ttgcgaagaa | tgtcaaaca | acagttccta | tggttgatata | ccatactatt | 1200 |
| tctgtagatt | tagcctcctt | ctcttctagt | caacaggagg | ggacagtaga | agctcctcag | 1260 |
| gttattgttc | ctggaggaag | ttatgttcga | tctggagagc | tttaatttga | gttagttaac | 1320 |
| acaacaggta | ctggttatga | aaatcatgct | ttgttgaaga | atgaggctaa | agttccattg | 1380 |
| atgtctttcg | ttgcttctag | tgatgaagct | tcagccgaaa | tcagtaactt | gtcggtttct | 1440 |
| gattttacaga | ttcatgtagc | aactccagag | attgaagaag | acacatacgg | ccatatggga | 1500 |
| gatttggtctg | aggctaaaaat | tcaagatgga | actcttgtca | tttaattggaa | tcctactgga | 1560 |
| tatcgattag | atcctcaaaa | agcaggggct | ttagtattta | atgcattatg | ggaagaagg | 1620 |
| gctgtcttgt | ctgctctgaa | aaatgcacgc | tttgctcata | atctcactgc | tcagcgtatg | 1680 |
| gaattcgatt | attctacaaa | tgtgtgggga | ttcgcttttg | gtggtttccg | aactctatct | 1740 |
| gcagagaatc | tggttgctat | tgatggatac | aaaggagctt | atgggtggtgc | ttctgctgga | 1800 |
| gtcgatatct | aattgatgga | agattttgtt | ctaggaggtta | gtggagctgc | tttcttaggt | 1860 |
| aaaatggata | gtcagaagtt | tgatgcggag | gtttctcgga | agggagttgt | tggttctgta | 1920 |

| | | | | | | |
|------------|------------|-------------|------------|-------------|------------|------|
| tatacaggat | ttttagctgg | atcctggttc | ttcaaaggac | aatatagcct | tggagaaaca | 1980 |
| cagaacgata | tgaaaacgcg | ttatggagta | ctaggagagt | cgagtgcctc | ttggacatct | 2040 |
| cgaggagtac | tggcagatgc | tttagttgaa | taccgaagtt | tagttgggtcc | tgtgagacct | 2100 |
| actttttatg | ctttgcattt | caatccttat | gtcgaagtat | cttatgcctc | tatgaaattc | 2160 |
| cctggcttta | cagaacaagg | aagagaagcg | cgttcctttg | aagacgcctc | ccttaccaat | 2220 |
| atcaccattc | ctttagggat | gaagtttgaa | ttggcgttca | taaaaggaca | gttttcagag | 2280 |
| gtgaactcct | tgggaataag | ttatgcatgg | gaagcctatc | gaaaagtaga | aggaggcgcg | 2340 |
| gtgcagcttt | tagaagctgg | gtttgattgg | gagggagctc | caatggatct | tcctagacag | 2400 |
| gagctgcgtg | tcgctctgga | aaataatacg | gaatggagtt | cttacttcag | cacagtctta | 2460 |
| ggattaacag | ctttttgtgg | aggattttact | tctacagata | gtaaactagg | atatgaggcg | 2520 |
| aatactggat | tgcgattgat | cttttaa | | | | 2547 |

<210> 185

<211> 2337

<212> DNA

<213> Chlamydia

<400> 185

| | | | | | | |
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| tctgtaaata | agctggtata | tgtaggccct | caagcggttt | tattgttaga | ccaaattcga | 120 |
| gatctattcg | ttgggtctaa | agatagtcag | gctgaaggac | agtatagggt | aattgtagga | 180 |
| gatccaaagt | ctttccaaga | gaaagatgca | gatactcttc | ccgggaagggt | agagcaaagt | 240 |
| actttgttct | cagtaaccaaa | tcccgtgggt | ttccaagggtg | tggaccaaca | ggatcaagtc | 300 |
| tcttcccaag | ggttaattttg | tagtttttacg | agcagcaacc | ttgattctcc | ccgtgacgga | 360 |
| gaatcctttt | taggtattgc | ttttgttggg | gatagtagta | aggctggaat | cacattaact | 420 |
| gacgtgaaaag | cttctttgtc | tggagcggt | ttatatctta | cagaagatct | tatctttgaa | 480 |
| aagattaagg | gtggattgga | atttgcatca | tgttcttctc | tagaacagggt | gggagcttgt | 540 |
| gcagctcaaa | gtattttgat | tcatgattgt | caaggattgc | aggttaaaca | ctgtactaca | 600 |
| gccgtgaatg | ctgaggggtc | tagtgcgaaat | gatcatcttg | gatttggagg | aggcgctttc | 660 |
| tttgttacgg | gttctctttc | tggagagaaa | agtctctata | tgcttgcagg | agatatggta | 720 |
| gttgcgaaat | gtgatggggc | tatatctttt | gaaggaaaca | gcgcgaactt | tgctaattgga | 780 |
| ggagcgattg | ctgcctctgg | gaaagtgcct | tttgtcgcta | atgataaaaa | gacttctttt | 840 |
| atagagaacc | gagctttgtc | tggaggagcg | attgcagcct | cttctgatat | tgctttcaa | 900 |
| aactgcgcag | aaactagttt | caaaggcaat | tgtgcaattg | gaacagagga | taaaggttct | 960 |
| ttagggtggag | gggctatata | ttctctaggc | accgttcttt | tgcaagggaa | tcacgggata | 1020 |
| acttgtgata | agaatgagtc | tgcttctgcaa | ggaggcgcca | tttttggcaa | aaattgtcag | 1080 |
| atttctgaca | acgagggggc | agtgggtttc | agagatagta | cagcttgctt | aggaggaggc | 1140 |
| gctattgcag | ctcaagaaat | tgtttctatt | cagaacaatc | aggctgggat | ttccttcgag | 1200 |
| ggaggtaagg | ctagtttcgg | aggaggtatt | gcgtgtggat | ctttttcttc | cgcaggcggt | 1260 |
| gcttctgttt | tagggactat | tgatatcttcg | aagaatttag | gcgcgatttc | gttctctcgt | 1320 |
| actttatgta | cgacctcaga | tttaggacaa | atggagtacc | agggaggagg | agctctatct | 1380 |
| ggtgaaaata | tttctctttc | tgagaatgct | ggtgtgctca | cctttaaaga | caacattgtg | 1440 |
| aagacttttg | cttcgaatgg | gaaaattctg | ggaggaggag | cgatttttagc | tactggtaag | 1500 |
| gtggaaatta | ccaataattc | cggagggaatt | tcttttacag | gaaatgcgag | agctccacaa | 1560 |
| gctcttccaa | ctcaagagga | gtttccttta | ttcagcaaaa | aagaaggcg | accactctct | 1620 |
| tcaggatatt | ctggggggagg | agcgatttta | ggaagagaag | tagctattct | ccacaacgct | 1680 |
| gcagtagtat | ttgagcaaaa | tcgtttgcag | tcgagcgaag | aagaagcgac | attattaggt | 1740 |
| tgttgtggag | gaggcgctgt | tcatgggagt | gatagcactt | cgattgttgg | caactcttca | 1800 |
| gtaagatttg | gtaataatta | cgcaatggga | caaggagtct | caggaggagc | tcttttatct | 1860 |
| aaaacagtgc | agtttagctgg | aaatggaagc | gtcgattttt | ctcgaaatat | tgctagtgtg | 1920 |
| ggaggaggag | ctcttcaagc | ttctgaagga | aattgtgagc | tagttgataa | cggctatgtg | 1980 |
| ctattcagag | ataatcgagg | gagggtttat | gggggtgcta | tttcttgctt | acgtggagat | 2040 |
| gtagtcattt | ctggaaacaa | gggtagagtt | gaatttaaag | acaacatagc | aacacgtctt | 2100 |
| tatgtggaag | aaactgtaga | aaagggttgaa | gaggtagagc | cagctcctga | gcaaaaagac | 2160 |
| aataatgagc | tttctttctt | agggagtgta | gaacagagtt | ttattactgc | agctaataca | 2220 |
| gctcttttctg | catctgaaga | tggggattta | tcacctgagt | catccatttc | ttctgaagaa | 2280 |
| cttgcgaaaa | gaagagagtg | tgctggagga | gctgactcga | gcagatccgg | ctgctaa | 2337 |

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 <211> 2847
 <212> DNA
 <213> Chlamydia

<400> 186
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 gtcctcggag gtgcggtcta tgctaaaaca ttgtttaatc tcgatagcgg gagctctaga 180
 cgaactgtca ccttctccgg gaatactgtc tcttctcaat ctacaacagg tcagggttgc 240
 ggaggagcta tctactctcc tactgttaacc attgtactc ctgtagtatt ttctaaaaac 300
 tctgcaacaa acaatgctaa taacgctaca gatactcaga gaaaagacac ctttggagga 360
 gctatcggag ctacttctgc tgtttctcta tcaggagggg ctcatctctt agaaaacggt 420
 gctgacctcg gatctgctat tgggttgggt ccagacacac aaaatacaga aacagtgaac 480
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 ttcacaggaa acttagtaac cccaacgcta agcacaacta cagaaggcac accagccaca 720
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 gcgggagatg ttaaattaac catgcaagct gcaaaaggga aaacgatcag tttctttgat 960
 gcaatccgga cctctactaa gaaaacaggt acacaggcaa ctgcctacga tactctcgat 1020
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 gtaccgacaa gaaactcagc tcgaggagaa tacagcacgc agctgtaccc gggacctttg 2760
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 aactgcgggtg ctcgatgac attctaa 2847

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<211> 2466
 <212> DNA
 <213> Chlamydia

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 gacaacacag agtatcgagc tgctgatagt gtttcattct atgacttttc gacatcttcc 180
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 atctga 2466

<210> 188
 <211> 1578
 <212> DNA
 <213> Chlamydia

<400> 188
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 accgttcata tcgggcctac cgccttctc ggcttggggtg ttgtcgacaa caacggcaac 180

ggcgacgag tccaacgcgt ggtcgggagc gctccggcgg caagtctcgg catctccaacc 240
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<210> 189
 <211> 866
 <212> PRT
 <213> Chlamydia

<220>
 <221> VARIANT
 <222> (1)...(866)
 <223> Xaa = Any Amino Acid

<400> 189
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 Gly Glu Thr Ala Leu Leu Thr Lys Asn Pro Asn His Val Val Cys Thr
 20 25 30
 Phe Phe Glu Asp Cys Thr Met Glu Ser Leu Phe Pro Ala Leu Cys Ala
 35 40 45
 His Ala Ser Gln Asp Asp Pro Leu Tyr Val Leu Gly Asn Ser Tyr Cys
 50 55 60
 Trp Phe Val Ser Lys Leu His Ile Thr Asp Pro Lys Glu Ala Leu Phe
 65 70 75 80
 Lys Glu Lys Gly Asp Leu Ser Ile Gln Asn Phe Arg Phe Leu Ser Phe
 85 90 95
 Thr Asp Cys Ser Ser Lys Glu Ser Ser Pro Ser Ile Ile His Gln Lys
 100 105 110
 Asn Gly Gln Leu Ser Leu Arg Asn Asn Gly Ser Met Ser Phe Cys Arg
 115 120 125
 Asn His Ala Glu Gly Ser Gly Gly Ala Ile Ser Ala Asp Ala Phe Ser
 130 135 140
 Leu Gln His Asn Tyr Leu Phe Thr Ala Phe Glu Asn Ser Ser Lys
 145 150 155 160
 Gly Asn Gly Gly Ala Ile Gln Ala Gln Thr Phe Ser Leu Ser Arg Asn

| | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Ser | Pro | Ile | 165 | Ser | Phe | Ala | Arg | Asn | 170 | Arg | Ala | Asp | Leu | Asn | 175 | Gly | Gly |
| | | | 180 | | | | | | 185 | | | | | | 190 | | | |
| Ala | Ile | Cys | Cys | Ser | Asn | Leu | Ile | Cys | Ser | Gly | Asn | Val | Asn | Pro | Leu | | | |
| | | 195 | | | | | | 200 | | | | | 205 | | | | | |
| Phe | Phe | Thr | Gly | Asn | Ser | Ala | Thr | Asn | Gly | Gly | Xaa | Ile | Cys | Cys | Ile | | | |
| | 210 | | | | | 215 | | | | | 220 | | | | | | | |
| Ser | Asp | Leu | Asn | Thr | Ser | Glu | Lys | Gly | Ser | Leu | Ser | Leu | Ala | Cys | Asn | | | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | | | |
| Gln | Xaa | Thr | Leu | Phe | Ala | Ser | Asn | Ser | Ala | Lys | Glu | Lys | Gly | Gly | Ala | | | |
| | | | | 245 | | | | | 250 | | | | | | 255 | | | |
| Ile | Tyr | Ala | Lys | His | Met | Val | Leu | Arg | Tyr | Asn | Gly | Pro | Val | Ser | Phe | | | |
| | | | 260 | | | | | 265 | | | | | 270 | | | | | |
| Ile | Asn | Asn | Ser | Ala | Lys | Ile | Gly | Gly | Ala | Ile | Ala | Ile | Gln | Ser | Gly | | | |
| | | 275 | | | | | 280 | | | | | 285 | | | | | | |
| Gly | Ser | Leu | Ser | Ile | Leu | Ala | Gly | Glu | Gly | Ser | Val | Leu | Phe | Gln | Asn | | | |
| | 290 | | | | | 295 | | | | | 300 | | | | | | | |
| Asn | Ser | Gln | Arg | Thr | Ser | Asp | Gln | Gly | Leu | Val | Arg | Asn | Ala | Ile | Tyr | | | |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 | | | |
| Leu | Glu | Lys | Asp | Ala | Ile | Leu | Ser | Ser | Leu | Glu | Ala | Arg | Asn | Gly | Asp | | | |
| | | | | 325 | | | | | 330 | | | | | | 335 | | | |
| Ile | Leu | Phe | Phe | Asp | Pro | Ile | Val | Gln | Glu | Ser | Ser | Ser | Lys | Glu | Ser | | | |
| | | | 340 | | | | | 345 | | | | | 350 | | | | | |
| Pro | Leu | Pro | Ser | Ser | Leu | Gln | Ala | Ser | Val | Thr | Ser | Pro | Thr | Pro | Ala | | | |
| | | 355 | | | | | 360 | | | | | | 365 | | | | | |
| Thr | Ala | Ser | Pro | Leu | Val | Ile | Gln | Thr | Ser | Ala | Asn | Arg | Ser | Val | Ile | | | |
| | 370 | | | | | 375 | | | | | 380 | | | | | | | |
| Phe | Ser | Ser | Glu | Arg | Leu | Ser | Glu | Glu | Glu | Lys | Thr | Pro | Asp | Asn | Leu | | | |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 | | | |
| Thr | Ser | Gln | Leu | Gln | Gln | Pro | Ile | Glu | Leu | Lys | Ser | Gly | Arg | Leu | Val | | | |
| | | | | 405 | | | | | 410 | | | | | 415 | | | | |
| Leu | Lys | Asp | Arg | Ala | Val | Leu | Ser | Xaa | Pro | Ser | Leu | Ser | Gln | Asp | Pro | | | |
| | | | 420 | | | | | 425 | | | | | 430 | | | | | |
| Gln | Ala | Leu | Leu | Ile | Met | Glu | Ala | Gly | Thr | Ser | Leu | Lys | Thr | Ser | Xaa | | | |
| | | 435 | | | | 440 | | | | | | 445 | | | | | | |
| Asp | Leu | Lys | Leu | Xaa | Thr | Xaa | Ser | Ile | Pro | Leu | His | Ser | Leu | Asp | Thr | | | |
| | 450 | | | | 455 | | | | | 460 | | | | | | | | |
| Glu | Lys | Ser | Val | Thr | Ile | His | Ala | Pro | Asn | Leu | Ser | Ile | Gln | Lys | Ile | | | |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 | | | |
| Phe | Leu | Ser | Asn | Ser | Gly | Asp | Glu | Asn | Phe | Tyr | Glu | Asn | Val | Glu | Leu | | | |
| | | | | 485 | | | | | 490 | | | | | 495 | | | | |
| Leu | Ser | Lys | Glu | Gln | Asn | Asn | Ile | Pro | Leu | Leu | Thr | Leu | Pro | Lys | Glu | | | |
| | | | 500 | | | | | 505 | | | | | 510 | | | | | |
| Gln | Ser | His | Leu | His | Leu | Pro | Asp | Gly | Asn | Leu | Ser | Ser | His | Phe | Gly | | | |
| | | 515 | | | | | 520 | | | | | 525 | | | | | | |
| Tyr | Gln | Gly | Asp | Trp | Thr | Phe | Ser | Trp | Lys | Asp | Ser | Asp | Glu | Gly | His | | | |
| | 530 | | | | | 535 | | | | | 540 | | | | | | | |
| Ser | Leu | Ile | Ala | Asn | Trp | Thr | Pro | Lys | Asn | Tyr | Val | Pro | His | Pro | Glu | | | |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 | | | |
| Arg | Gln | Ser | Thr | Leu | Val | Ala | Asn | Thr | Leu | Trp | Asn | Thr | Tyr | Ser | Asp | | | |
| | | | | 565 | | | | | 570 | | | | | 575 | | | | |
| Met | Gln | Ala | Val | Gln | Ser | Met | Ile | Asn | Thr | Thr | Ala | His | Gly | Gly | Ala | | | |
| | | | 580 | | | | | 585 | | | | | 590 | | | | | |
| Tyr | Leu | Phe | Gly | Thr | Trp | Gly | Ser | Ala | Val | Ser | Asn | Leu | Phe | Tyr | Val | | | |
| | | 595 | | | | 600 | | | | | | 605 | | | | | | |
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| | 610 | | | | | 615 | | | | | 620 | | | | | | | |

Gly Tyr Leu Phe Gly Ile Ser Thr His Ser Leu Asp Asp His Ser Phe
 625 630 635 640
 Cys Leu Ala Ala Gly Gln Leu Leu Gly Lys Ser Ser Asp Ser Phe Ile
 645 650 655
 Thr Ser Thr Glu Thr Thr Ser Tyr Ile Ala Thr Val Gln Ala Gln Leu
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 Ala Thr Ser Leu Met Lys Ile Ser Ala Gln Ala Cys Tyr Asn Glu Ser
 675 680 685
 Ile His Glu Leu Lys Thr Lys Tyr Arg Ser Phe Ser Lys Glu Gly Phe
 690 695 700
 Gly Ser Trp His Ser Val Ala Val Ser Gly Glu Val Cys Ala Ser Ile
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 Pro Ile Val Ser Asn Gly Ser Gly Leu Phe Ser Ser Phe Ser Ile Phe
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 Ser Lys Leu Gln Gly Phe Ser Gly Thr Gln Asp Gly Phe Glu Glu Ser
 740 745 750
 Ser Gly Glu Ile Arg Ser Phe Ser Ala Ser Ser Phe Arg Asn Ile Ser
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 Leu Pro Ile Gly Ile Thr Phe Glu Lys Lys Ser Gln Lys Thr Arg Thr
 770 775 780
 Tyr Tyr Tyr Phe Leu Gly Ala Tyr Ile Gln Asp Leu Lys Arg Asp Val
 785 790 795 800
 Glu Ser Gly Pro Val Leu Leu Lys Asn Ala Val Ser Trp Asp Ala
 805 810 815
 Pro Met Ala Asn Leu Asp Ser Arg Ala Tyr Met Phe Arg Leu Thr Asn
 820 825 830
 Gln Arg Ala Leu His Arg Leu Gln Thr Leu Leu Asn Val Ser Cys Val
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 Arg Phe
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 35 40 45
 Ser Gly Thr Thr Val Phe Ser Ala Gly Glu Leu Thr Leu Lys Asn Leu
 50 55 60
 Asp Asn Ser Ile Ala Ala Leu Pro Leu Ser Cys Phe Gly Asn Leu Leu
 65 70 75 80
 Gly Ser Phe Thr Val Leu Gly Arg Gly His Ser Leu Thr Phe Glu Asn
 85 90 95
 Ile Arg Thr Ser Thr Asn Gly Ala Ala Leu Ser Asn Ser Ala Ala Asp
 100 105 110
 Gly Leu Phe Thr Ile Glu Gly Phe Lys Glu Leu Ser Phe Ser Asn Cys
 115 120 125
 Asn Ser Leu Leu Ala Val Leu Pro Ala Ala Thr Thr Asn Lys Gly Ser
 130 135 140

Gln Thr Pro Thr Thr Thr Ser Thr Pro Ser Asn Gly Thr Ile Tyr Ser
 145 150 155 160
 Lys Thr Asp Leu Leu Leu Leu Asn Asn Glu Lys Phe Ser Phe Tyr Ser
 165 170 175
 Asn Leu Val Ser Gly Asp Gly Gly Ala Ile Asp Ala Lys Ser Leu Thr
 180 185 190
 Val Gln Gly Ile Ser Lys Leu Cys Val Phe Gln Glu Asn Thr Ala Gln
 195 200 205
 Ala Asp Gly Gly Ala Cys Gln Val Val Thr Ser Phe Ser Ala Met Ala
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 Asn Glu Ala Pro Ile Ala Phe Val Ala Asn Val Ala Gly Val Arg Gly
 225 230 235 240
 Gly Gly Ile Ala Ala Val Gln Asp Gly Gln Gln Gly Val Ser Ser Ser
 245 250 255
 Thr Ser Thr Glu Asp Pro Val Val Ser Phe Ser Arg Asn Thr Ala Val
 260 265 270
 Glu Phe Asp Gly Asn Val Ala Arg Val Gly Gly Gly Ile Tyr Ser Tyr
 275 280 285
 Gly Asn Val Ala Phe Leu Asn Asn Gly Lys Thr Leu Phe Leu Asn Asn
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 Val Ala Ser Pro Val Tyr Ile Ala Ala Lys Gln Pro Thr Ser Gly Gln
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 Lys Asn Gly Ala Gln Ala Gly Ser Asn Asn Ser Gly Ser Val Ser Phe
 340 345 350
 Asp Gly Glu Gly Val Val Phe Phe Ser Ser Asn Val Ala Ala Gly Lys
 355 360 365
 Gly Gly Ala Ile Tyr Ala Lys Lys Leu Ser Val Ala Asn Cys Gly Pro
 370 375 380
 Val Gln Phe Leu Arg Asn Ile Ala Asn Asp Gly Gly Ala Ile Tyr Leu
 385 390 395 400
 Gly Glu Ser Gly Glu Leu Ser Leu Ser Ala Asp Tyr Gly Asp Ile Ile
 405 410 415
 Phe Asp Gly Asn Leu Lys Arg Thr Ala Lys Glu Asn Ala Ala Asp Val
 420 425 430
 Asn Gly Val Thr Val Ser Ser Gln Ala Ile Ser Met Gly Ser Gly Gly
 435 440 445
 Lys Ile Thr Thr Leu Arg Ala Lys Ala Gly His Gln Ile Leu Phe Asn
 450 455 460
 Asp Pro Ile Glu Met Ala Asn Gly Asn Asn Gln Pro Ala Gln Ser Ser
 465 470 475 480
 Lys Leu Leu Lys Ile Asn Asp Gly Glu Gly Tyr Thr Gly Asp Ile Val
 485 490 495
 Phe Ala Asn Gly Ser Ser Thr Leu Tyr Gln Asn Val Thr Ile Glu Gln
 500 505 510
 Gly Arg Ile Val Leu Arg Glu Lys Ala Lys Leu Ser Val Asn Ser Leu
 515 520 525
 Ser Gln Thr Gly Gly Ser Leu Tyr Met Glu Ala Gly Ser Thr Leu Asp
 530 535 540
 Phe Val Thr Pro Gln Pro Pro Gln Gln Pro Pro Ala Ala Asn Gln Leu
 545 550 555 560
 Ile Thr Leu Ser Asn Leu His Leu Ser Leu Ser Ser Leu Leu Ala Asn
 565 570 575
 Asn Ala Val Thr Asn Pro Pro Thr Asn Pro Pro Ala Gln Asp Ser His
 580 585 590
 Pro Ala Val Ile Gly Ser Thr Thr Ala Gly Ser Val Thr Ile Ser Gly

595 600 605
 Pro Ile Phe Phe Glu Asp Leu Asp Asp Thr Ala Tyr Asp Arg Tyr Asp
 610 615 620
 Trp Leu Gly Ser Asn Gln Lys Ile Asn Val Leu Lys Leu Gln Leu Gly
 625 630 635 640
 Thr Lys Pro Pro Ala Asn Ala Pro Ser Asp Leu Thr Leu Gly Asn Glu
 645 650 655
 Met Pro Lys Tyr Gly Tyr Gln Gly Ser Trp Lys Leu Ala Trp Asp Pro
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 Asn Thr Ala Asn Asn Gly Pro Tyr Thr Leu Lys Ala Thr Trp Thr Lys
 675 680 685
 Thr Gly Tyr Asn Pro Gly Pro Glu Arg Val Ala Ser Leu Val Pro Asn
 690 695 700
 Ser Leu Trp Gly Ser Ile Leu Asp Ile Arg Ser Ala His Ser Ala Ile
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 Gln Ala Ser Val Asp Gly Arg Ser Tyr Cys Arg Gly Leu Trp Val Ser
 725 730 735
 Gly Val Ser Asn Phe Phe Tyr His Asp Arg Asp Ala Leu Gly Gln Gly
 740 745 750
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 755 760 765
 Gly Ser Ser Met Phe Gly Leu Ala Phe Thr Glu Val Phe Gly Arg Ser
 770 775 780
 Lys Asp Tyr Val Val Cys Arg Ser Asn His His Ala Cys Ile Gly Ser
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 Val Tyr Leu Ser Thr Gln Gln Ala Leu Cys Gly Ser Tyr Leu Phe Gly
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 Asp Ala Phe Ile Arg Ala Ser Tyr Gly Phe Gly Asn Gln His Met Lys
 820 825 830
 Thr Ser Tyr Thr Phe Ala Glu Glu Ser Asp Val Arg Trp Asp Asn Asn
 835 840 845
 Cys Leu Ala Gly Glu Ile Gly Ala Gly Leu Pro Ile Val Ile Thr Pro
 850 855 860
 Ser Lys Leu Tyr Leu Asn Glu Leu Arg Pro Phe Val Gln Ala Glu Phe
 865 870 875 880
 Ser Tyr Ala Asp His Glu Ser Phe Thr Glu Glu Gly Asp Gln Ala Arg
 885 890 895
 Ala Phe Lys Ser Gly His Leu Leu Asn Leu Ser Val Pro Val Gly Val
 900 905 910
 Lys Phe Asp Arg Cys Ser Ser Thr His Pro Asn Lys Tyr Ser Phe Met
 915 920 925
 Ala Ala Tyr Ile Cys Asp Ala Tyr Arg Thr Ile Ser Gly Thr Glu Thr
 930 935 940
 Thr Leu Leu Ser His Gln Glu Thr Trp Thr Thr Asp Ala Phe His Leu
 945 950 955 960
 Ala Arg His Gly Val Val Val Arg Gly Ser Met Tyr Ala Ser Leu Thr
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 980 985 990
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 995 1000 1005

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0984433-043304

<400> 191

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| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Val | Pro | Ser | Ser | Asp | Pro | His | His | His | His | His | His | Gly | Leu | Ala | Arg |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Glu | Val | Pro | Ser | Arg | Ile | Phe | Leu | Met | Pro | Asn | Ser | Val | Pro | Asp | Pro |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Thr | Lys | Glu | Ser | Leu | Ser | Asn | Lys | Ile | Ser | Leu | Thr | Gly | Asp | Thr | His |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Asn | Leu | Thr | Asn | Cys | Tyr | Leu | Asp | Asn | Leu | Arg | Tyr | Ile | Leu | Ala | Ile |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Leu | Gln | Lys | Thr | Pro | Asn | Glu | Gly | Ala | Ala | Val | Thr | Ile | Thr | Asp | Tyr |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Leu | Ser | Phe | Phe | Asp | Thr | Gln | Lys | Glu | Gly | Ile | Tyr | Phe | Ala | Lys | Asn |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Leu | Thr | Pro | Glu | Ser | Gly | Gly | Ala | Ile | Gly | Tyr | Ala | Ser | Pro | Asn | Ser |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Pro | Thr | Val | Glu | Ile | Arg | Asp | Thr | Ile | Gly | Pro | Val | Ile | Phe | Glu | Asn |
| | | 130 | | | | 135 | | | | | 140 | | | | |
| Asn | Thr | Cys | Cys | Arg | Leu | Phe | Thr | Trp | Arg | Asn | Pro | Tyr | Ala | Ala | Asp |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Lys | Ile | Arg | Glu | Gly | Gly | Ala | Ile | His | Ala | Gln | Asn | Leu | Tyr | Ile | Asn |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| His | Asn | His | Asp | Val | Val | Gly | Phe | Met | Lys | Asn | Phe | Ser | Tyr | Val | Gln |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Gly | Gly | Ala | Ile | Ser | Thr | Ala | Asn | Thr | Phe | Val | Val | Ser | Glu | Asn | Gln |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Ser | Cys | Phe | Leu | Phe | Met | Asp | Asn | Ile | Cys | Ile | Gln | Thr | Asn | Thr | Ala |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Gly | Lys | Gly | Gly | Ala | Ile | Tyr | Ala | Gly | Thr | Ser | Asn | Ser | Phe | Glu | Ser |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Asn | Asn | Cys | Asp | Leu | Phe | Phe | Ile | Asn | Asn | Ala | Cys | Cys | Ala | Gly | Gly |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Ala | Ile | Phe | Ser | Pro | Ile | Cys | Ser | Leu | Thr | Gly | Asn | Arg | Gly | Asn | Ile |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Val | Phe | Tyr | Asn | Asn | Arg | Cys | Phe | Lys | Asn | Val | Glu | Thr | Ala | Ser | Ser |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Glu | Ala | Ser | Asp | Gly | Gly | Ala | Ile | Lys | Val | Thr | Thr | Arg | Leu | Asp | Val |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Thr | Gly | Asn | Arg | Gly | Arg | Ile | Phe | Phe | Ser | Asp | Asn | Ile | Thr | Lys | Asn |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Tyr | Gly | Gly | Ala | Ile | Tyr | Ala | Pro | Val | Val | Thr | Leu | Val | Asp | Asn | Gly |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Pro | Thr | Tyr | Phe | Ile | Asn | Asn | Ile | Ala | Asn | Asn | Lys | Gly | Gly | Ala | Ile |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Tyr | Ile | Asp | Gly | Thr | Ser | Asn | Ser | Lys | Ile | Ser | Ala | Asp | Arg | His | Ala |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Ile | Ile | Phe | Asn | Glu | Asn | Ile | Val | Thr | Asn | Val | Thr | Asn | Ala | Asn | Gly |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Thr | Ser | Thr | Ser | Ala | Asn | Pro | Pro | Arg | Arg | Asn | Ala | Ile | Thr | Val | Ala |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Ser | Ser | Ser | Gly | Glu | Ile | Leu | Leu | Gly | Ala | Gly | Ser | Ser | Gln | Asn | Leu |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Ile | Phe | Tyr | Asp | Pro | Ile | Glu | Val | Ser | Asn | Ala | Gly | Val | Ser | Val | Ser |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Phe | Asn | Lys | Glu | Ala | Asp | Gln | Thr | Gly | Ser | Val | Val | Phe | Ser | Gly | Ala |
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T.D.E. 410 " 23.4.80

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
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| Pro | Ala | Pro | Leu | Thr | Leu | Ser | Asn | Gly | Phe | Leu | Cys | Ile | Glu | Asp | His |
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| Ala | Gln | Leu | Thr | Val | Asn | Arg | Phe | Thr | Gln | Thr | Gly | Gly | Val | Val | Ser |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Leu | Gly | Asn | Gly | Ala | Val | Leu | Ser | Cys | Tyr | Lys | Asn | Gly | Thr | Gly | Asp |
| | | 500 | | | | | | 505 | | | | | 510 | | |
| Ser | Ala | Ser | Asn | Ala | Ser | Ile | Thr | Leu | Lys | His | Ile | Gly | Leu | Asn | Leu |
| | | 515 | | | | | 520 | | | | | 525 | | | |
| Ser | Ser | Ile | Leu | Lys | Ser | Gly | Ala | Glu | Ile | Pro | Leu | Leu | Trp | Val | Glu |
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| Pro | Thr | Asn | Asn | Ser | Asn | Asn | Tyr | Thr | Ala | Asp | Thr | Ala | Ala | Thr | Phe |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 |
| Ser | Leu | Ser | Asp | Val | Lys | Leu | Ser | Leu | Ile | Asp | Asp | Tyr | Gly | Asn | Ser |
| | | | | 565 | | | | | 570 | | | | | 575 | |
| Pro | Tyr | Glu | Ser | Thr | Asp | Leu | Thr | His | Ala | Leu | Ser | Ser | Gln | Pro | Met |
| | | | | 580 | | | | 585 | | | | | 590 | | |
| Leu | Ser | Ile | Ser | Glu | Ala | Ser | Asp | Asn | Gln | Leu | Gln | Ser | Glu | Asn | Ile |
| | | 595 | | | | | 600 | | | | | 605 | | | |
| Asp | Phe | Ser | Gly | Leu | Asn | Val | Pro | His | Tyr | Gly | Trp | Gln | Gly | Leu | Trp |
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| Thr | Trp | Gly | Trp | Ala | Lys | Thr | Gln | Asp | Pro | Glu | Pro | Ala | Ser | Ser | Ala |
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| Thr | Ile | Thr | Asp | Pro | Gln | Lys | Ala | Asn | Arg | Phe | His | Arg | Thr | Leu | Leu |
| | | | | 645 | | | | | 650 | | | | | 655 | |
| Leu | Thr | Trp | Leu | Pro | Ala | Gly | Tyr | Val | Pro | Ser | Pro | Lys | His | Arg | Ser |
| | | | 660 | | | | | 665 | | | | | 670 | | |
| Pro | Leu | Ile | Ala | Asn | Thr | Leu | Trp | Gly | Asn | Met | Leu | Leu | Ala | Thr | Glu |
| | | 675 | | | | | 680 | | | | | 685 | | | |
| Ser | Leu | Lys | Asn | Ser | Ala | Glu | Leu | Thr | Pro | Ser | Gly | His | Pro | Phe | Trp |
| | 690 | | | | | 695 | | | | | 700 | | | | |
| Gly | Ile | Thr | Gly | Gly | Gly | Leu | Gly | Met | Met | Val | Tyr | Gln | Asp | Pro | Arg |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 |
| Glu | Asn | His | Pro | Gly | Phe | His | Met | Arg | Ser | Ser | Gly | Tyr | Ser | Ala | Gly |
| | | | | 725 | | | | | 730 | | | | | 735 | |
| Met | Ile | Ala | Gly | Gln | Thr | His | Thr | Phe | Ser | Leu | Lys | Phe | Ser | Gln | Thr |
| | | | 740 | | | | | 745 | | | | | 750 | | |
| Tyr | Thr | Lys | Leu | Asn | Glu | Arg | Tyr | Ala | Lys | Asn | Asn | Val | Ser | Ser | Lys |
| | | 755 | | | | | 760 | | | | | 765 | | | |
| Asn | Tyr | Ser | Cys | Gln | Gly | Glu | Met | Leu | Phe | Ser | Leu | Gln | Glu | Gly | Phe |
| | 770 | | | | | 775 | | | | | 780 | | | | |
| Leu | Leu | Thr | Lys | Leu | Val | Gly | Leu | Tyr | Ser | Tyr | Gly | Asp | His | Asn | Cys |
| 785 | | | | | 790 | | | | | 795 | | | | | 800 |
| His | His | Phe | Tyr | Thr | Gln | Gly | Glu | Asn | Leu | Thr | Ser | Gln | Gly | Thr | Phe |
| | | | | 805 | | | | | 810 | | | | | 815 | |
| Arg | Ser | Gln | Thr | Met | Gly | Gly | Ala | Val | Phe | Phe | Asp | Leu | Pro | Met | Lys |
| | | | 820 | | | | | 825 | | | | | 830 | | |
| Pro | Phe | Gly | Ser | Thr | His | Ile | Leu | Thr | Ala | Pro | Phe | Leu | Gly | Ala | Leu |
| | | 835 | | | | | 840 | | | | | 845 | | | |
| Gly | Ile | Tyr | Ser | Ser | Leu | Ser | His | Phe | Thr | Glu | Val | Gly | Ala | Tyr | Pro |
| | 850 | | | | | 855 | | | | | 860 | | | | |
| Arg | Ser | Phe | Ser | Thr | Lys | Thr | Pro | Leu | Ile | Asn | Val | Leu | Val | Pro | Ile |
| 865 | | | | | 870 | | | | | 875 | | | | | 880 |
| Gly | Val | Lys | Gly | Ser | Phe | Met | Asn | Ala | Thr | His | Arg | Pro | Gln | Ala | Trp |
| | | | | 885 | | | | | 890 | | | | | 895 | |
| Thr | Val | Glu | Leu | Ala | Tyr | Gln | Pro | Val | Leu | Tyr | Arg | Gln | Glu | Pro | Gly |

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| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Ala | Thr | Gln | Leu | Leu | Ala | Ser | Lys | Gly | Ile | Trp | Phe | Gly | Ser | Gly |
| | | 915 | | | | | 920 | | | | | 925 | | | |
| Ser | Pro | Ser | Ser | Arg | His | Ala | Met | Ser | Tyr | Lys | Ile | Ser | Gln | Gln | Thr |
| | 930 | | | | | 935 | | | | | 940 | | | | |
| Gln | Pro | Leu | Ser | Trp | Leu | Thr | Leu | His | Phe | Gln | Tyr | His | Gly | Phe | Tyr |
| 945 | | | | | 950 | | | | | 955 | | | | | 960 |
| Ser | Ser | Ser | Thr | Phe | Cys | Asn | Tyr | Leu | Asn | Gly | Glu | Ile | Ala | Leu | Arg |
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| Phe | | | | | | | | | | | | | | | |

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<400> 192

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| Gly | Asp | Val | Val | Ile | Ser | Gly | Asn | Lys | Gly | Arg | Val | Glu | Phe | Lys | Asp |
| | | 20 | | | | | 25 | | | | | | 30 | | |
| Asn | Ile | Ala | Thr | Arg | Leu | Tyr | Val | Glu | Glu | Thr | Val | Glu | Lys | Val | Glu |
| | 35 | | | | | 40 | | | | | 45 | | | | |
| Glu | Val | Glu | Pro | Ala | Pro | Glu | Gln | Lys | Asp | Asn | Asn | Glu | Leu | Ser | Phe |
| | 50 | | | | | 55 | | | | 60 | | | | | |
| Leu | Gly | Ser | Val | Glu | Gln | Ser | Phe | Ile | Thr | Ala | Ala | Asn | Gln | Ala | Leu |
| 65 | | | | 70 | | | | | 75 | | | | | 80 | |
| Phe | Ala | Ser | Glu | Asp | Gly | Asp | Leu | Ser | Pro | Glu | Ser | Ser | Ile | Ser | Ser |
| | | | | 85 | | | | 90 | | | | | 95 | | |
| Glu | Glu | Leu | Ala | Lys | Arg | Arg | Glu | Cys | Ala | Gly | Gly | Ala | Ile | Phe | Ala |
| | | 100 | | | | | 105 | | | | | | 110 | | |
| Lys | Arg | Val | Arg | Ile | Val | Asp | Asn | Gln | Glu | Ala | Val | Val | Phe | Ser | Asn |
| | 115 | | | | | 120 | | | | | | 125 | | | |
| Asn | Phe | Ser | Asp | Ile | Tyr | Gly | Gly | Ala | Ile | Phe | Thr | Gly | Ser | Leu | Arg |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Glu | Glu | Asp | Lys | Leu | Asp | Gly | Gln | Ile | Pro | Glu | Val | Leu | Ile | Ser | Gly |
| 145 | | | | | 150 | | | | 155 | | | | | 160 | |
| Asn | Ala | Gly | Asp | Val | Val | Phe | Ser | Gly | Asn | Ser | Ser | Lys | Arg | Asp | Glu |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| His | Leu | Pro | His | Thr | Gly | Gly | Gly | Ala | Ile | Cys | Thr | Gln | Asn | Leu | Thr |
| | 180 | | | | | | | 185 | | | | | 190 | | |
| Ile | Ser | Gln | Asn | Thr | Gly | Asn | Val | Leu | Phe | Tyr | Asn | Asn | Val | Ala | Cys |
| | 195 | | | | | 200 | | | | | | 205 | | | |
| Ser | Gly | Gly | Ala | Val | Arg | Ile | Glu | Asp | His | Gly | Asn | Val | Leu | Leu | Glu |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Ala | Phe | Gly | Gly | Asp | Ile | Val | Phe | Lys | Gly | Asn | Ser | Ser | Phe | Arg | Ala |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Gln | Gly | Ser | Asp | Ala | Ile | Tyr | Phe | Ala | Gly | Lys | Glu | Ser | His | Ile | Thr |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Ala | Leu | Asn | Ala | Thr | Glu | Gly | His | Ala | Ile | Val | Phe | His | Asp | Ala | Leu |
| | | 260 | | | | | | 265 | | | | | 270 | | |
| Val | Phe | Glu | Asn | Leu | Lys | Glu | Arg | Lys | Ser | Ala | Glu | Val | Leu | Leu | Ile |
| | 275 | | | | | 280 | | | | | | 285 | | | |
| Asn | Ser | Arg | Glu | Asn | Pro | Gly | Tyr | Thr | Gly | Ser | Ile | Arg | Phe | Leu | Glu |
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| Ala | Glu | Ser | Lys | Val | Pro | Gln | Cys | Ile | His | Val | Gln | Gln | Gly | Ser | Leu |

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| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Glu | Leu | Leu | Asn | Gly | Ala | Thr | Leu | Cys | Ser | Tyr | Gly | Phe | Lys | Gln | Asp |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Ala | Gly | Ala | Lys | Leu | Val | Leu | Ala | Ala | Gly | Ser | Lys | Leu | Lys | Ile | Leu |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Asp | Ser | Gly | Thr | Pro | Val | Gln | Gly | His | Ala | Ile | Ser | Lys | Pro | Glu | Ala |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Glu | Ile | Glu | Ser | Ser | Ser | Glu | Pro | Glu | Gly | Ala | His | Ser | Leu | Trp | Ile |
| | | 370 | | | | | 375 | | | | | 380 | | | |
| Ala | Lys | Asn | Ala | Gln | Thr | Thr | Val | Pro | Met | Val | Asp | Ile | His | Thr | Ile |
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| Ser | Val | Asp | Leu | Ala | Ser | Phe | Ser | Ser | Ser | Gln | Gln | Glu | Gly | Thr | Val |
| | | | 405 | | | | | 410 | | | | | | 415 | |
| Glu | Ala | Pro | Gln | Val | Ile | Val | Pro | Gly | Gly | Ser | Tyr | Val | Arg | Ser | Gly |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Glu | Leu | Asn | Leu | Glu | Leu | Val | Asn | Thr | Thr | Gly | Thr | Gly | Tyr | Glu | Asn |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| His | Ala | Leu | Leu | Lys | Asn | Glu | Ala | Lys | Val | Pro | Leu | Met | Ser | Phe | Val |
| | | 450 | | | | 455 | | | | | 460 | | | | |
| Ala | Ser | Ser | Asp | Glu | Ala | Ser | Ala | Glu | Ile | Ser | Asn | Leu | Ser | Val | Ser |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Asp | Leu | Gln | Ile | His | Val | Ala | Thr | Pro | Glu | Ile | Glu | Glu | Asp | Thr | Tyr |
| | | | 485 | | | | | 490 | | | | | | 495 | |
| Gly | His | Met | Gly | Asp | Trp | Ser | Glu | Ala | Lys | Ile | Gln | Asp | Gly | Thr | Leu |
| | | | 500 | | | | | 505 | | | | | 510 | | |
| Val | Ile | Asn | Trp | Asn | Pro | Thr | Gly | Tyr | Arg | Leu | Asp | Pro | Gln | Lys | Ala |
| | | 515 | | | | | 520 | | | | | 525 | | | |
| Gly | Ala | Leu | Val | Phe | Asn | Ala | Leu | Trp | Glu | Glu | Gly | Ala | Val | Leu | Ser |
| | | 530 | | | | 535 | | | | | 540 | | | | |
| Ala | Leu | Lys | Asn | Ala | Arg | Phe | Ala | His | Asn | Leu | Thr | Ala | Gln | Arg | Met |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 |
| Glu | Phe | Asp | Tyr | Ser | Thr | Asn | Val | Trp | Gly | Phe | Ala | Phe | Gly | Gly | Phe |
| | | | 565 | | | | | 570 | | | | | 575 | | |
| Arg | Thr | Leu | Ser | Ala | Glu | Asn | Leu | Val | Ala | Ile | Asp | Gly | Tyr | Lys | Gly |
| | | | 580 | | | | | 585 | | | | | 590 | | |
| Ala | Tyr | Gly | Gly | Ala | Ser | Ala | Gly | Val | Asp | Ile | Gln | Leu | Met | Glu | Asp |
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| Phe | Val | Leu | Gly | Val | Ser | Gly | Ala | Ala | Phe | Leu | Gly | Lys | Met | Asp | Ser |
| | | 610 | | | | 615 | | | | | 620 | | | | |
| Gln | Lys | Phe | Asp | Ala | Glu | Val | Ser | Arg | Lys | Gly | Val | Val | Gly | Ser | Val |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 |
| Tyr | Thr | Gly | Phe | Leu | Ala | Gly | Ser | Trp | Phe | Phe | Lys | Gly | Gln | Tyr | Ser |
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| Leu | Gly | Glu | Thr | Gln | Asn | Asp | Met | Lys | Thr | Arg | Tyr | Gly | Val | Leu | Gly |
| | | 660 | | | | | 665 | | | | | | 670 | | |
| Glu | Ser | Ser | Ala | Ser | Trp | Thr | Ser | Arg | Gly | Val | Leu | Ala | Asp | Ala | Leu |
| | | 675 | | | | | 680 | | | | | 685 | | | |
| Val | Glu | Tyr | Arg | Ser | Leu | Val | Gly | Pro | Val | Arg | Pro | Thr | Phe | Tyr | Ala |
| | | 690 | | | | 695 | | | | | 700 | | | | |
| Leu | His | Phe | Asn | Pro | Tyr | Val | Glu | Val | Ser | Tyr | Ala | Ser | Met | Lys | Phe |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 |
| Pro | Gly | Phe | Thr | Glu | Gln | Gly | Arg | Glu | Ala | Arg | Ser | Phe | Glu | Asp | Ala |
| | | | 725 | | | | | 730 | | | | | 735 | | |
| Ser | Leu | Thr | Asn | Ile | Thr | Ile | Pro | Leu | Gly | Met | Lys | Phe | Glu | Leu | Ala |
| | | | 740 | | | | | 745 | | | | | 750 | | |
| Phe | Ile | Lys | Gly | Gln | Phe | Ser | Glu | Val | Asn | Ser | Leu | Gly | Ile | Ser | Tyr |
| | | 755 | | | | | 760 | | | | | 765 | | | |

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Ala Trp Glu Ala Tyr Arg Lys Val Glu Gly Gly Ala Val Gln Leu Leu
 770 775 780
 Glu Ala Gly Phe Asp Trp Glu Gly Ala Pro Met Asp Leu Pro Arg Gln
 785 790 795 800
 Glu Leu Arg Val Ala Leu Glu Asn Asn Thr Glu Trp Ser Ser Tyr Phe
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 Asp Ser Lys Leu Gly Tyr Glu Ala Asn Thr Gly Leu Arg Leu Ile Phe
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 Val Leu Leu Leu Asp Gln Ile Arg Asp Leu Phe Val Gly Ser Lys Asp
 35 40 45
 Ser Gln Ala Glu Gly Gln Tyr Arg Leu Ile Val Gly Asp Pro Ser Ser
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 Phe Gln Glu Lys Asp Ala Asp Thr Leu Pro Gly Lys Val Glu Gln Ser
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 Thr Leu Phe Ser Val Thr Asn Pro Val Val Phe Gln Gly Val Asp Gln
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 Gln Asp Gln Val Ser Ser Gln Gly Leu Ile Cys Ser Phe Thr Ser Ser
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 Val Gly Asp Ser Ser Lys Ala Gly Ile Thr Leu Thr Asp Val Lys Ala
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 Ser Leu Ser Gly Ala Ala Leu Tyr Ser Thr Glu Asp Leu Ile Phe Glu
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 Lys Ile Lys Gly Gly Leu Glu Phe Ala Ser Cys Ser Ser Leu Glu Gln
 165 170 175
 Gly Gly Ala Cys Ala Ala Gln Ser Ile Leu Ile His Asp Cys Gln Gly
 180 185 190
 Leu Gln Val Lys His Cys Thr Thr Ala Val Asn Ala Glu Gly Ser Ser
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 Ala Asn Asp His Leu Gly Phe Gly Gly Gly Ala Phe Phe Val Thr Gly
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 Ser Leu Ser Gly Glu Lys Ser Leu Tyr Met Pro Ala Gly Asp Met Val
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 Val Ala Asn Cys Asp Gly Ala Ile Ser Phe Glu Gly Asn Ser Ala Asn
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 Phe Ala Asn Gly Gly Ala Ile Ala Ala Ser Gly Lys Val Leu Phe Val
 260 265 270
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 275 280 285
 Gly Ala Ile Ala Ala Ser Ser Asp Ile Ala Phe Gln Asn Cys Ala Glu
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 Leu Val Phe Lys Gly Asn Cys Ala Ile Gly Thr Glu Asp Lys Gly Ser
 305 310 315 320

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Leu Gly Gly Gly Ala Ile Ser Ser Leu Gly Thr Val Leu Leu Gln Gly
 325 330 335
 Asn His Gly Ile Thr Cys Asp Lys Asn Glu Ser Ala Ser Gln Gly Gly
 340 345 350
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 Val Phe Arg Asp Ser Thr Ala Cys Leu Gly Gly Gly Ala Ile Ala Ala
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 Gln Glu Ile Val Ser Ile Gln Asn Asn Gln Ala Gly Ile Ser Phe Glu
 385 390 395 400
 Gly Gly Lys Ala Ser Phe Gly Gly Gly Ile Ala Cys Gly Ser Phe Ser
 405 410 415
 Ser Ala Gly Gly Ala Ser Val Leu Gly Thr Ile Asp Ile Ser Lys Asn
 420 425 430
 Leu Gly Ala Ile Ser Phe Ser Arg Thr Leu Cys Thr Thr Ser Asp Leu
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 Gly Gln Met Glu Tyr Gln Gly Gly Ala Leu Phe Gly Glu Asn Ile
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 Ser Leu Ser Glu Asn Ala Gly Val Leu Thr Phe Lys Asp Asn Ile Val
 465 470 475 480
 Lys Thr Phe Ala Ser Asn Gly Lys Ile Leu Gly Gly Gly Ala Ile Leu
 485 490 495
 Ala Thr Gly Lys Val Glu Ile Thr Asn Asn Ser Gly Gly Ile Ser Phe
 500 505 510
 Thr Gly Asn Ala Arg Ala Pro Gln Ala Leu Pro Thr Gln Glu Glu Phe
 515 520 525
 Pro Leu Phe Ser Lys Lys Glu Gly Arg Pro Leu Ser Ser Gly Tyr Ser
 530 535 540
 Gly Gly Gly Ala Ile Leu Gly Arg Glu Val Ala Ile Leu His Asn Ala
 545 550 555 560
 Ala Val Val Phe Glu Gln Asn Arg Leu Gln Cys Ser Glu Glu Glu Ala
 565 570 575
 Thr Leu Leu Gly Cys Cys Gly Gly Gly Ala Val His Gly Met Asp Ser
 580 585 590
 Thr Ser Ile Val Gly Asn Ser Ser Val Arg Phe Gly Asn Asn Tyr Ala
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 Met Gly Gln Gly Val Ser Gly Gly Ala Leu Leu Ser Lys Thr Val Gln
 610 615 620
 Leu Ala Gly Asn Gly Ser Val Asp Phe Ser Arg Asn Ile Ala Ser Leu
 625 630 635 640
 Gly Gly Gly Ala Leu Gln Ala Ser Glu Gly Asn Cys Glu Leu Val Asp
 645 650 655
 Asn Gly Tyr Val Leu Phe Arg Asp Asn Arg Gly Arg Val Tyr Gly Gly
 660 665 670
 Ala Ile Ser Cys Leu Arg Gly Asp Val Val Ile Ser Gly Asn Lys Gly
 675 680 685
 Arg Val Glu Phe Lys Asp Asn Ile Ala Thr Arg Leu Tyr Val Glu Glu
 690 695 700
 Thr Val Glu Lys Val Glu Glu Val Glu Pro Ala Pro Glu Gln Lys Asp
 705 710 715 720
 Asn Asn Glu Leu Ser Phe Leu Gly Ser Val Glu Gln Ser Phe Ile Thr
 725 730 735
 Ala Ala Asn Gln Ala Leu Phe Ala Ser Glu Asp Gly Asp Leu Ser Pro
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 Glu Ser Ser Ile Ser Ser Glu Glu Leu Ala Lys Arg Arg Glu Cys Ala
 755 760 765
 Gly Gly Ala Asp Ser Ser Arg Ser Gly Cys

770

775

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| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
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| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ser | Gly | Gln | Gly | Ile | Phe | Ser | Gly | Asn | Lys | Ala | Ile | Asp | Asn | Thr | Thr |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Glu | Gly | Ser | Ser | Ser | Lys | Ser | Asn | Val | Leu | Gly | Gly | Ala | Val | Tyr | Ala |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Lys | Thr | Leu | Phe | Asn | Leu | Asp | Ser | Gly | Ser | Ser | Arg | Arg | Thr | Val | Thr |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Phe | Ser | Gly | Asn | Thr | Val | Ser | Ser | Gln | Ser | Thr | Thr | Gly | Gln | Val | Ala |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Gly | Gly | Ala | Ile | Tyr | Ser | Pro | Thr | Val | Thr | Ile | Ala | Thr | Pro | Val | Val |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Phe | Ser | Lys | Asn | Ser | Ala | Thr | Asn | Asn | Ala | Asn | Asn | Ala | Thr | Asp | Thr |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Gln | Arg | Lys | Asp | Thr | Phe | Gly | Gly | Ala | Ile | Gly | Ala | Thr | Ser | Ala | Val |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Ser | Leu | Ser | Gly | Gly | Ala | His | Phe | Leu | Glu | Asn | Val | Ala | Asp | Leu | Gly |
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| Ser | Ala | Ile | Gly | Leu | Val | Pro | Asp | Thr | Gln | Asn | Thr | Glu | Thr | Val | Lys |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Leu | Glu | Ser | Gly | Ser | Tyr | Tyr | Phe | Glu | Lys | Asn | Lys | Ala | Leu | Lys | Arg |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Ala | Thr | Ile | Tyr | Ala | Pro | Val | Val | Ser | Ile | Lys | Ala | Tyr | Thr | Ala | Thr |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Phe | Asn | Gln | Asn | Arg | Ser | Leu | Glu | Glu | Gly | Ser | Ala | Ile | Tyr | Phe | Thr |
| | 195 | | | | | | 200 | | | | | 205 | | | |
| Lys | Glu | Ala | Ser | Ile | Glu | Ser | Leu | Gly | Ser | Val | Leu | Phe | Thr | Gly | Asn |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Leu | Val | Thr | Pro | Thr | Leu | Ser | Thr | Thr | Thr | Glu | Gly | Thr | Pro | Ala | Thr |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Thr | Ser | Gly | Asp | Val | Thr | Lys | Tyr | Gly | Ala | Ala | Ile | Phe | Gly | Gln | Ile |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Ala | Ser | Ser | Asn | Gly | Ser | Gln | Thr | Asp | Asn | Leu | Pro | Leu | Lys | Leu | Ile |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Ala | Ser | Gly | Gly | Asn | Ile | Cys | Phe | Arg | Asn | Asn | Glu | Tyr | Arg | Pro | Thr |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Ser | Ser | Asp | Thr | Gly | Thr | Ser | Thr | Phe | Cys | Ser | Ile | Ala | Gly | Asp | Val |
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| Lys | Leu | Thr | Met | Gln | Ala | Lys | Gly | Lys | Thr | Ile | Ser | Phe | Phe | Asp | |
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| Ala | Ile | Arg | Thr | Ser | Thr | Lys | Lys | Thr | Gly | Thr | Gln | Ala | Thr | Ala | Tyr |
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| Asp | Thr | Leu | Asp | Ile | Asn | Lys | Ser | Glu | Asp | Ser | Glu | Thr | Val | Asn | Ser |
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| Ala | Phe | Thr | Gly | Thr | Ile | Leu | Phe | Ser | Ser | Glu | Leu | His | Glu | Asn | Lys |
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| Ser | Tyr | Ile | Pro | Gln | Asn | Val | Val | Leu | His | Ser | Gly | Ser | Leu | Val | Leu |
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| Lys | Pro | Asn | Thr | Glu | Leu | His | Val | Ile | Ser | Phe | Glu | Gln | Lys | Glu | Gly |

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| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Ser | Ser | Leu | Val | Met | Thr | Pro | Gly | Ser | Val | Leu | Ser | Asn | Gln | Thr | Val |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Ala | Asp | Gly | Ala | Leu | Val | Ile | Asn | Asn | Met | Thr | Ile | Asp | Leu | Ser | Ser |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Val | Glu | Lys | Asn | Gly | Ile | Ala | Glu | Gly | Asn | Ile | Phe | Thr | Pro | Pro | Glu |
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| Leu | Arg | Ile | Ile | Asp | Thr | Thr | Thr | Ser | Gly | Ser | Gly | Gly | Thr | Pro | Ser |
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| Thr | Asp | Ser | Glu | Ser | Asn | Gln | Asn | Ser | Asp | Asp | Thr | Lys | Glu | Gln | Asn |
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| Asn | Asn | Asp | Ala | Ser | Asn | Gln | Gly | Glu | Ser | Ala | Asn | Gly | Ser | Ser | Ser |
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| Pro | Ala | Val | Ala | Ala | Ala | His | Thr | Ser | Arg | Thr | Arg | Asn | Phe | Ala | Ala |
| | | 500 | | | | | | 505 | | | | | 510 | | |
| Ala | Ala | Thr | Ala | Thr | Pro | Thr | Thr | Thr | Pro | Thr | Ala | Thr | Thr | Thr | Thr |
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| Ser | Asn | Gln | Val | Ile | Leu | Gly | Gly | Glu | Ile | Lys | Leu | Ile | Asp | Pro | Asn |
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| Leu | Leu | Val | Leu | Pro | Thr | Asp | Ser | Ser | Lys | Met | Gln | Ala | Gln | Lys | Ile |
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| Val | Leu | Thr | Gly | Asp | Ile | Ala | Pro | Gln | Lys | Gly | Tyr | Thr | Gly | Thr | Leu |
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| Thr | Leu | Asp | Pro | Asp | Gln | Leu | Gln | Asn | Gly | Thr | Ile | Ser | Ala | Leu | Trp |
| | | 595 | | | | | 600 | | | | | 605 | | | |
| Lys | Phe | Asp | Ser | Tyr | Arg | Gln | Trp | Ala | Tyr | Val | Pro | Arg | Asp | Asn | His |
| | 610 | | | | | 615 | | | | | 620 | | | | |
| Phe | Tyr | Ala | Asn | Ser | Ile | Leu | Gly | Ser | Gln | Met | Ser | Met | Val | Thr | Val |
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| Lys | Gln | Gly | Leu | Leu | Asn | Asp | Lys | Met | Asn | Leu | Ala | Arg | Phe | Asp | Glu |
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| Val | Ser | Tyr | Asn | Asn | Leu | Trp | Ile | Ser | Gly | Leu | Gly | Thr | Met | Leu | Ser |
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| Gln | Val | Gly | Thr | Pro | Thr | Ser | Glu | Glu | Phe | Thr | Tyr | Tyr | Ser | Arg | Gly |
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| Ala | Ser | Val | Ala | Leu | Asp | Ala | Lys | Pro | Ala | His | Asp | Val | Ile | Val | Gly |
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| Ala | Ala | Phe | Ser | Lys | Met | Ile | Gly | Lys | Thr | Lys | Ser | Leu | Lys | Arg | Glu |
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| Asn | Asn | Tyr | Thr | His | Lys | Gly | Ser | Glu | Tyr | Ser | Tyr | Gln | Ala | Ser | Val |
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| Tyr | Gly | Gly | Lys | Pro | Phe | His | Phe | Val | Ile | Asn | Lys | Lys | Thr | Glu | Lys |
| | | | 740 | | | | | 745 | | | | | 750 | | |
| Ser | Leu | Pro | Leu | Leu | Leu | Gln | Gly | Val | Ile | Ser | Tyr | Gly | Tyr | Ile | Lys |
| | | 755 | | | | | 760 | | | | | 765 | | | |
| His | Asp | Thr | Val | Thr | His | Tyr | Pro | Thr | Ile | Arg | Glu | Arg | Asn | Gln | Gly |
| | 770 | | | | | 775 | | | | | 780 | | | | |
| Glu | Trp | Glu | Asp | Leu | Gly | Trp | Leu | Thr | Ala | Leu | Arg | Val | Ser | Ser | Val |
| 785 | | | | | 790 | | | | | 795 | | | | | 800 |
| Leu | Arg | Thr | Pro | Ala | Gln | Gly | Asp | Thr | Lys | Arg | Ile | Thr | Val | Tyr | Gly |
| | | | | 805 | | | | | 810 | | | | | 815 | |
| Glu | Leu | Glu | Tyr | Ser | Ser | Ile | Arg | Gln | Lys | Gln | Phe | Thr | Glu | Thr | Glu |
| | | | 820 | | | | | 825 | | | | | 830 | | |
| Tyr | Asp | Pro | Arg | Tyr | Phe | Asp | Asn | Cys | Thr | Tyr | Arg | Asn | Leu | Ala | Ile |
| | | 835 | | | | | 840 | | | | | 845 | | | |

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Ser Glu Thr Lys Asp Thr Gln Val Ser Glu Ser Pro Glu Ser Thr Pro
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 Ser Pro Asp Asp Val Leu Gly Lys Gly Gly Gly Ile Tyr Thr Glu Lys
 305 310 315 320
 Ser Leu Thr Ile Thr Gly Ile Thr Gly Thr Ile Asp Phe Val Ser Asn
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 Ile Ala Thr Asp Ser Gly Ala Gly Val Phe Thr Lys Glu Asn Leu Ser
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 Cys Thr Asn Thr Asn Ser Leu Gln Phe Leu Lys Asn Ser Ala Gly Gln
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 His Gly Gly Gly Ala Tyr Val Thr Gln Thr Met Ser Val Thr Asn Thr
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 Lys Glu Ser Gly Gly Ala Ile Phe Thr Asp Leu Ala Ser Ile Pro Thr
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 Thr Asp Gln Thr Glu Thr Ser Asp Thr Asn Ser Asp Ile Asp Val Ser
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 Ile Glu Asn Ile Leu Asn Val Ala Ile Asn Gln Asn Thr Ser Ala Lys
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 Lys Gly Gly Ala Ile Tyr Gly Lys Lys Ala Lys Leu Ser Arg Ile Asn
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 Cys Leu Thr Glu Ser Val Glu Phe Asp Ala Ile Gly Ser Leu Leu Ser
 565 570 575
 His Tyr Asn Ser Ala Ala Lys Glu Gly Gly Val Ile His Ser Lys Thr
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 Val Lys Ala Ile Val Glu Ser Thr Pro Glu Ala Pro Glu Glu Ile Pro
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 Pro Val Glu Gly Glu Glu Ser Thr Ala Thr Glu Asn Pro Asn Ser Asn
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 Thr Glu Gly Ser Ser Ala Asn Thr Asn Leu Glu Gly Ser Gln Gly Asp
 645 650 655
 Thr Ala Asp Thr Gly Thr Gly Val Val Asn Asn Glu Ser Gln Asp Thr
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 Ser Asp Thr Gly Asn Ala Glu Ser Gly Glu Gln Leu Gln Asp Ser Thr
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 Gln Ser Asn Glu Glu Asn Thr Leu Pro Asn Ser Ser Ile Asp Gln Ser
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 Asp Glu Ser Val Ser Ser Ser Lys Ser Gly Ser Ser Thr Pro Gln
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 Asp Gly Gly Ala Ala Ser Ser Gly Ala Pro Ser Gly Asp Gln Ser Ile

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<210> 196
<211> 525
<212> PRT
<213> Chlamydia
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|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| <400> 196 | | | | | | | | | | | | | | | |
| Met 1 | His | His | His | His 5 | His | His | Thr | Ala | Ala 10 | Ser | Asp | Asn | Phe | Gln 15 | Leu |
| Ser | Gln | Gly | Gly 20 | Gln | Gly | Phe | Ala | Ile 25 | Pro | Ile | Gly | Gln | Ala 30 | Met | Ala |
| Ile | Ala | Gly 35 | Gln | Ile | Lys | Leu | Pro 40 | Thr | Val | His | Ile | Gly 45 | Pro | Thr | Ala |
| Phe | Leu 50 | Gly | Leu | Gly | Val | Val 55 | Asp | Asn | Asn | Gly | Asn 60 | Gly | Ala | Arg | Val |
| Gln 65 | Arg | Val | Val | Gly | Ser 70 | Ala | Pro | Ala | Ala | Ser 75 | Leu | Gly | Ile | Ser | Thr 80 |
| Gly | Asp | Val | Ile | Thr 85 | Ala | Val | Asp | Gly | Ala 90 | Pro | Ile | Asn | Ser | Ala 95 | Thr |
| Ala | Met | Ala | Asp 100 | Ala | Leu | Asn | Gly | His 105 | His | Pro | Gly | Asp | Val 110 | Ile | Ser |
| Val | Thr | Trp 115 | Gln | Thr | Lys | Ser | Gly 120 | Gly | Thr | Arg | Thr | Gly 125 | Asn | Val | Thr |
| Leu | Ala 130 | Glu | Gly | Pro | Pro | Ala 135 | Glu | Phe | Pro | Leu | Val 140 | Pro | Arg | Gly | Ser |
| Pro 145 | Leu | Pro | Val | Gly | Asn 150 | Pro | Ala | Glu | Pro | Ser 155 | Leu | Leu | Ile | Asp | Gly 160 |
| Thr | Met | Trp | Glu | Gly 165 | Ala | Ser | Gly | Asp | Pro 170 | Cys | Asp | Pro | Cys | Ala 175 | Thr |
| Trp | Cys | Asp | Ala 180 | Ile | Ser | Ile | Arg | Ala 185 | Gly | Tyr | Tyr | Gly | Asp 190 | Tyr | Val |
| Phe | Asp 195 | Arg | Val | Leu | Lys | Val | Asp 200 | Val | Asn | Lys | Thr | Phe 205 | Ser | Gly | Met |
| Ala | Ala 210 | Thr | Pro | Thr | Gln | Ala 215 | Ile | Gly | Asn | Ala | Ser 220 | Asn | Thr | Asn | Gln |
| Pro 225 | Glu | Ala | Asn | Gly | Arg 230 | Pro | Asn | Ile | Ala | Tyr 235 | Gly | Arg | His | Met | Gln 240 |
| Asp | Ala | Glu | Trp | Phe 245 | Ser | Asn | Ala | Ala | Phe 250 | Leu | Ala | Leu | Asn | Ile 255 | Trp |
| Asp | Arg | Phe | Asp 260 | Ile | Phe | Cys | Thr | Leu 265 | Gly | Ala | Ser | Asn | Gly 270 | Tyr | Phe |
| Lys | Ala | Ser 275 | Ser | Ala | Ala | Phe | Asn 280 | Leu | Val | Gly | Leu | Ile 285 | Gly | Phe | Ser |
| Ala | Ala 290 | Ser | Ser | Ile | Ser | Thr 295 | Asp | Leu | Pro | Met | Gln 300 | Leu | Pro | Asn | Val |
| Gly | Ile | Thr | Gln | Gly | Val | Val | Glu | Phe | Tyr | Thr | Asp | Thr | Ser | Phe | Ser |

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<210> 197
<211> 43
<212> DNA
<213> Chlamydia
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43

34

6

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<210> 200
<211> 34
<212> DNA
<213> Chlamydia
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<210> 215
 <211> 48
 <212> DNA
 <213> Chlamydia

<400> 215
 cagaggatcc acatcaccat caccatcacg gactagctag agagggttc 48

<210> 216
 <211> 31
 <212> DNA
 <213> Chlamydia

<400> 216
 cagagaattc ctagaatcgc agagcaattt c 31

<210> 217
 <211> 7
 <212> DNA
 <213> Chlamydia

<400> 217
 tgcaatc 7

<210> 218
 <211> 22
 <212> PRT
 <213> Chlamydia

<400> 218
 Met Ala Ser Met Thr Gly Gly Gln Gln Met Gly Arg Asp Ser Ser Leu
 1 5 10 15
 Val Pro Ser Ser Asp Pro
 20

<210> 219
 <211> 51
 <212> DNA
 <213> Chlamydia

<400> 219
 cagagggtacc gcatcaccat caccatcaca tgattcctca aggaatttac g 51

<210> 220
 <211> 33
 <212> DNA
 <213> Chlamydia

<400> 220
 cagagcggcc gcttagaacc ggactttact tcc 33

<210> 221
 <211> 24
 <212> PRT
 <213> Chlamydia

<400> 221
 Met Ala Ser Met Thr Gly Gly Gln Gln Asn Gly Arg Asp Ser Ser Leu
 1 5 10 15
 Val Pro His His His His His His
 20

<210> 222
 <211> 46
 <212> DNA
 <213> Chlamydia

<400> 222
 cagagctagc catcaccatc accatcacct ctttggccag gatccc 46

<210> 223
 <211> 30
 <212> DNA
 <213> Chlamydia

<400> 223
 cagaactagt ctagaacctg taagtgggcc 30

<210> 224
 <211> 20
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Made in a lab

<400> 224
 Met Ser Gln Lys Asn Lys Asn Ser Ala Phe Met His Pro Val Asn Ile
 1 5 10 15
 Ser Thr Asp Leu
 20

<210> 225
 <211> 20
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Made in a lab

<400> 225
 Lys Asn Ser Ala Phe Met His Pro Val Asn Ile Ser Thr Asp Leu Ala
 1 5 10 15
 Val Ile Val Gly
 20

<210> 226
 <211> 20
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Made in a lab

093413e 042301

<400> 226

His Pro Val Asn Ile Ser Thr Asp Leu Ala Val Ile Val Gly Lys Gly
 1 5 10 15
 Pro Met Pro Arg
 20

<210> 227

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 227

Ser Thr Asp Leu Ala Val Ile Val Gly Lys Gly Pro Met Pro Arg Thr
 1 5 10 15
 Glu Ile Val Lys
 20

<210> 228

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 228

Val Ile Val Gly Lys Gly Pro Met Pro Arg Thr Glu Ile Val Lys Lys
 1 5 10 15
 Val Trp Glu Tyr
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<210> 229

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 229

Gly Pro Met Pro Arg Thr Glu Ile Val Lys Lys Val Trp Glu Tyr Ile
 1 5 10 15
 Lys Lys His Asn
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<210> 230

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

0041360-04301

<400> 230
 Ile Lys Lys His Asn Cys Gln Asp Gln Lys Asn Lys Arg Asn Ile Leu
 1 5 10 15
 Pro Asp Ala Asn
 20

<210> 231
 <211> 20
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Made in a lab

<400> 231
 Asn Cys Gln Asp Gln Lys Asn Lys Arg Asn Ile Leu Pro Asp Ala Asn
 1 5 10 15
 Leu Ala Lys Val
 20

<210> 232
 <211> 20
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Made in a lab

<400> 232
 Lys Asn Lys Arg Asn Ile Leu Pro Asp Ala Asn Leu Ala Lys Val Phe
 1 5 10 15
 Gly Ser Ser Asp
 20

<210> 233
 <211> 20
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Made in a lab

<400> 233
 Ile Leu Pro Asp Ala Asn Leu Ala Lys Val Phe Gly Ser Ser Asp Pro
 1 5 10 15
 Ile Asp Met Phe
 20

<210> 234
 <211> 20
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Made in a lab

<400> 234

050413104301

<400> 242
Asp Val Ile Ile Thr Gln Gln Leu Pro Cys Glu Ala Glu Phe Val Arg
1 5 10 15

Ser Asp Pro Ala
20

<210> 243
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 243
Thr Gln Gln Leu Pro Cys Glu Ala Glu Phe Val Arg Ser Asp Pro Ala
1 5 10 15
Thr Thr Pro Thr
20

<210> 244
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 244
Cys Glu Ala Glu Phe Val Arg Ser Asp Pro Ala Thr Thr Pro Thr Ala
1 5 10 15
Asp Gly Lys Leu
20

<210> 245
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 245
Val Arg Ser Asp Pro Ala Thr Thr Pro Thr Ala Asp Gly Lys Leu Val
1 5 10 15
Trp Lys Ile Asp
20

<210> 246
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Made in a lab

<400> 246
Ala Thr Thr Pro Thr Ala Asp Gly Lys Leu Val Trp Lys Ile Asp Arg
1 5 10 15
Leu Gly Gln Gly

TOC340 "244" 04350

<223> Made in a lab

<400> 255

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Ala | Asp | Pro | Ser | Phe | Lys | Ile | Ser | Glu | Ala | Phe | Gly | Val | Leu | Asn |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Pro | Glu | Gly | Ser | | | | | | | | | | | | |
| | | | | 20 | | | | | | | | | | | |

<210> 256

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 256

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Lys | Ile | Ser | Glu | Ala | Phe | Gly | Val | Leu | Asn | Pro | Glu | Gly | Ser | Leu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ala | Leu | Arg | Ala | | | | | | | | | | | | |
| | | | | 20 | | | | | | | | | | | |

<210> 257

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 257

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Phe | Gly | Val | Leu | Asn | Pro | Glu | Gly | Ser | Leu | Ala | Leu | Arg | Ala | Thr |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Phe | Leu | Ile | Asp | | | | | | | | | | | | |
| | | | | 20 | | | | | | | | | | | |

<210> 258

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

<400> 258

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Pro | Glu | Gly | Ser | Leu | Ala | Leu | Arg | Ala | Thr | Phe | Leu | Ile | Asp | Lys |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| His | Gly | Val | Ile | | | | | | | | | | | | |
| | | | | 20 | | | | | | | | | | | |

<210> 259

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Made in a lab

090413-04301

<400> 259
 Leu Ala Leu Arg Ala Thr Phe Leu Ile Asp Lys His Gly Val Ile Arg
 1 5 10 15
 His Ala Val Ile
 20

<210> 260
 <211> 20
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Made in a lab

<400> 260
 Thr Phe Leu Ile Asp Lys His Gly Val Ile Arg His Ala Val Ile Asn
 1 5 10 15
 Asp Leu Pro Leu
 20

<210> 261
 <211> 20
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Made in a lab

<400> 261
 Lys His Gly Val Ile Arg His Ala Val Ile Asn Asp Leu Pro Leu Gly
 1 5 10 15
 Arg Ser Ile Asp
 20

<210> 262
 <211> 20
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Made in a lab

<400> 262
 Arg His Ala Val Ile Asn Asp Leu Pro Leu Gly Arg Ser Ile Asp Glu
 1 5 10 15
 Glu Leu Arg Ile
 20

<210> 263
 <211> 897
 <212> DNA
 <213> Chlamydia

<220>
 <221> misc_feature
 <222> (1)...(897)

TOE240"2ET4860

<223> n = A,T,C or G

<400> 263

| | | | | | | |
|------------|-------------|------------|------------|------------|------------|-----|
| atggcttcta | tatgcggacg | tttagggctc | ggtacagggg | atgctctaaa | agcttttttt | 60 |
| acacagccca | acaataaaat | ggcaagggta | gtaaataaga | cgaagggagt | ggataagact | 120 |
| attaaggttg | ccaagtctgc | tgccgaattg | accgcaaata | ttttggaaca | agctggaggc | 180 |
| gcgggctctt | ccgcacacat | tacagcttcc | caagtgtcca | aaggattagg | ggatgcgaga | 240 |
| actgttgctg | cttttagggaa | tgcttttaac | ggagcgttgc | caggaacagt | tcaaagtgcg | 300 |
| caaagcttct | tctctcacat | gaaagctgct | agtcagaaaa | cgcaagaagg | ggatgagggg | 360 |
| ctcacagcag | atctttgtgt | gtctcataag | cgcagagcgg | ctgcggtgtg | ctgtagcatc | 420 |
| atcggaggaa | ttacctacct | cgcgacattc | ggagctatcc | gtccgattct | gtttgtcaac | 480 |
| aaaatgctgg | caaaaccgtt | tctttcttcc | caaactaaag | caaatatggg | atcttctggt | 540 |
| agctatatta | tggcggctaa | ccatgcagcg | tctgtgggtg | gtgctggact | cgctatcagt | 600 |
| gcgnaaagag | cagattgcga | agcccgtctg | gctcgtattg | cgagagaaga | gtcgttactc | 660 |
| gaagtgccgg | gagaggaaaa | tgcttgccag | aagaaagtcg | ctggagagaa | agccaagacg | 720 |
| ttcacgcgca | tcaagtatgc | actcctcact | atgctcgaga | agtttttggg | atgcgttgcc | 780 |
| gacgttttca | aattggtgcc | gctgcctatt | acaatgggta | ttcgtgcgat | tgtggctgct | 840 |
| ggatgtacgt | tcacttctgc | aattattgga | ttgtgcactt | tctgcgccag | agcataa | 897 |

<210> 264

<211> 298

<212> PRT

<213> Chlamydia

<220>

<221> VARIANT

<222> (1)...(298)

<223> Xaa = Any Amino Acid

<400> 264

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Ser | Ile | Cys | Gly | Arg | Leu | Gly | Ser | Gly | Thr | Gly | Asn | Ala | Leu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Lys | Ala | Phe | Phe | Thr | Gln | Pro | Asn | Asn | Lys | Met | Ala | Arg | Val | Val | Asn |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Lys | Thr | Lys | Gly | Val | Asp | Lys | Thr | Ile | Lys | Val | Ala | Lys | Ser | Ala | Ala |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Glu | Leu | Thr | Ala | Asn | Ile | Leu | Glu | Gln | Ala | Gly | Gly | Ala | Gly | Ser | Ser |
| | 50 | | | | | 55 | | | | 60 | | | | | |
| Ala | His | Ile | Thr | Ala | Ser | Gln | Val | Ser | Lys | Gly | Leu | Gly | Asp | Ala | Arg |
| 65 | | | | | 70 | | | | 75 | | | | | 80 | |
| Thr | Val | Val | Ala | Leu | Gly | Asn | Ala | Phe | Asn | Gly | Ala | Leu | Pro | Gly | Thr |
| | | | | 85 | | | | 90 | | | | | | 95 | |
| Val | Gln | Ser | Ala | Gln | Ser | Phe | Phe | Ser | His | Met | Lys | Ala | Ala | Ser | Gln |
| | | 100 | | | | | | 105 | | | | | 110 | | |
| Lys | Thr | Gln | Glu | Gly | Asp | Glu | Gly | Leu | Thr | Ala | Asp | Leu | Cys | Val | Ser |
| | 115 | | | | | 120 | | | | | 125 | | | | |
| His | Lys | Arg | Arg | Ala | Ala | Ala | Ala | Val | Cys | Ser | Ile | Ile | Gly | Gly | Ile |
| 130 | | | | | 135 | | | | | 140 | | | | | |
| Thr | Tyr | Leu | Ala | Thr | Phe | Gly | Ala | Ile | Arg | Pro | Ile | Leu | Phe | Val | Asn |
| 145 | | | | | 150 | | | | 155 | | | | | | 160 |
| Lys | Met | Leu | Ala | Lys | Pro | Phe | Leu | Ser | Ser | Gln | Thr | Lys | Ala | Asn | Met |
| | | | 165 | | | | | 170 | | | | | | 175 | |
| Gly | Ser | Ser | Val | Ser | Tyr | Ile | Met | Ala | Ala | Asn | His | Ala | Ala | Ser | Val |
| | 180 | | | | | | 185 | | | | | 190 | | | |
| Val | Gly | Ala | Gly | Leu | Ala | Ile | Ser | Ala | Xaa | Arg | Ala | Asp | Cys | Glu | Ala |
| | 195 | | | | | 200 | | | | | | 205 | | | |
| Arg | Cys | Ala | Arg | Ile | Ala | Arg | Glu | Glu | Ser | Leu | Leu | Glu | Val | Pro | Gly |

| | | | | |
|-------------------------|-------------------------|---------------------|-----|-----|
| 210 | | 215 | | 220 |
| Glu Glu Asn Ala Cys | Glu Lys Lys Val Ala Gly | Glu Lys Ala Lys Thr | | |
| 225 | 230 | 235 | 240 | |
| Phe Thr Arg Ile Lys Tyr | Ala Leu Leu Thr Met | Leu Glu Lys Phe Leu | | |
| | 245 | 250 | 255 | |
| Glu Cys Val Ala Asp Val | Phe Lys Leu Val Pro | Leu Pro Ile Thr Met | | |
| | 260 | 265 | 270 | |
| Gly Ile Arg Ala Ile Val | Ala Ala Gly Cys Thr | Phe Thr Ser Ala Ile | | |
| | 275 | 280 | 285 | |
| Ile Gly Leu Cys Thr Phe | Cys Ala Arg Ala | | | |
| 290 | 295 | | | |

<210> 265
 <211> 897
 <212> DNA
 <213> Chlamydia

<220>
 <221> misc_feature
 <222> (1)...(897)
 <223> n = A,T,C or G

| | | | | | |
|-------------|-------------|-------------|-------------|-------------|-------------|
| <400> 265 | | | | | |
| atggcttcta | tatgcggacg | tttagggctct | ggtacagggga | atgctctaaa | agctttttttt |
| acacagccca | acaataaaaat | ggcaagggtta | gtaaataaga | cgaaggggaat | ggataagact |
| attaaggttg | ccaagtctgc | tgccgaattg | accgcaaata | ttttggaaca | agctggaggc |
| gcgggctctt | ccgcacacat | tacagcttcc | caagtgtcca | aaggattagg | ggatgcgaga |
| actgttgctg | ctttagggaa | tgcctttaac | ggagcgttgc | caggaacagt | tcaaagtgcg |
| caaagcttct | tctctcacat | gaaagctgct | agtcagaaaa | cgcaagaagg | ggatgagggg |
| ctcacagcag | atctttgtgt | gtctcataag | cgcagagcgg | ctgcggctgt | ctgtagcatc |
| atcggaggaa | ttacctacct | cgcgacattc | ggagctatcc | gtccgattct | gtttgtcaac |
| aaaatgctgg | caaaaccgtt | tctttcttcc | caaactaaag | caaatatggg | atcttctggt |
| agctatatata | tggcggctaa | ccatgcagcg | tctgtggtgg | gtgctggact | cgctatcagt |
| gcgnaaagag | cagattgcga | agcccgctgc | gctcgtattg | cgagagaaga | gtcggtactc |
| gaagtgccgg | gagaggaaaa | tgcttgcgag | aagaaagtcg | ctggagagaa | agccaagacg |
| ttcacgcgca | tcaagtatgc | actcctcact | atgctcgaga | agtttttgga | atgcgttgcc |
| gacgttttca | aattggtgcc | gctgcctatt | acaatgggta | ttcgtgcgat | tgtggctgct |
| ggatgtacgt | tcacttctgc | aattattgga | ttgtgcactt | tctgcgccag | agcataa |
| | | | | | 897 |

<210> 266
 <211> 298
 <212> PRT
 <213> Chlamydia

<220>
 <221> VARIANT
 <222> (1)...(298)
 <223> Xaa = Any Amino Acid

| | | | | | |
|---|----|----|----|--|--|
| <400> 266 | | | | | |
| Met Ala Ser Ile Cys Gly Arg Leu Gly Ser Gly Thr Gly Asn Ala Leu | | | | | |
| 1 | 5 | 10 | 15 | | |
| Lys Ala Phe Phe Thr Gln Pro Asn Asn Lys Met Ala Arg Val Val Asn | | | | | |
| | 20 | 25 | 30 | | |
| Lys Thr Lys Gly Met Asp Lys Thr Ile Lys Val Ala Lys Ser Ala Ala | | | | | |
| | 35 | 40 | 45 | | |
| Glu Leu Thr Ala Asn Ile Leu Glu Gln Ala Gly Gly Ala Gly Ser Ser | | | | | |

50 55 60
 Ala His Ile Thr Ala Ser Gln Val Ser Lys Gly Leu Gly Asp Ala Arg
 65 70 75 80
 Thr Val Val Ala Leu Gly Asn Ala Phe Asn Gly Ala Leu Pro Gly Thr
 85 90 95
 Val Gln Ser Ala Gln Ser Phe Phe Ser His Met Lys Ala Ala Ser Gln
 100 105 110
 Lys Thr Gln Glu Gly Asp Glu Gly Leu Thr Ala Asp Leu Cys Val Ser
 115 120 125
 His Lys Arg Arg Ala Ala Ala Ala Val Cys Ser Ile Ile Gly Gly Ile
 130 135 140
 Thr Tyr Leu Ala Thr Phe Gly Ala Ile Arg Pro Ile Leu Phe Val Asn
 145 150 155 160
 Lys Met Leu Ala Lys Pro Phe Leu Ser Ser Gln Thr Lys Ala Asn Met
 165 170 175
 Gly Ser Ser Val Ser Tyr Ile Met Ala Ala Asn His Ala Ala Ser Val
 180 185 190
 Val Gly Ala Gly Leu Ala Ile Ser Ala Xaa Arg Ala Asp Cys Glu Ala
 195 200 205
 Arg Cys Ala Arg Ile Ala Arg Glu Glu Ser Leu Leu Glu Val Pro Gly
 210 215 220
 Glu Glu Asn Ala Cys Glu Lys Lys Val Ala Gly Glu Lys Ala Lys Thr
 225 230 235 240
 Phe Thr Arg Ile Lys Tyr Ala Leu Leu Thr Met Leu Glu Lys Phe Leu
 245 250 255
 Glu Cys Val Ala Asp Val Phe Lys Leu Val Pro Leu Pro Ile Thr Met
 260 265 270
 Gly Ile Arg Ala Ile Val Ala Ala Gly Cys Thr Phe Thr Ser Ala Ile
 275 280 285
 Ile Gly Leu Cys Thr Phe Cys Ala Arg Ala
 290 295

<210> 267
 <211> 680
 <212> DNA
 <213> Chlamydia

<400> 267
 tctatatcca tattgatagg aaaaaacgctc gcagaaagat tttagctatg acgtttatcc 60
 gagctttagg atattcaaca gatgcagata ttattgaaga gttcttttct gtagaggagc 120
 gttccttacg ttcagagaag gattttgtcg cgtagattgg taaagtttta gctgataacg 180
 tagttgatgc ggattcttca ttagtttacg ggaaagctgg agagaagcta agtactgcta 240
 tgctaaaacg catcttagat acgggagtc aatctttgaa gattgctgtt ggcgcagatg 300
 aaaatcacc aattattaag atgctcgcaa aagatcctac ggattcttac gaagctgctc 360
 ttaaagattt ttatcgaga ttacgaccag gagagcctgc aacttttagct aatgctcgat 420
 ccacaattat gcgtttattc ttcgatgcta aacgttataa tttaggccgc gttggacggt 480
 ataaattaaa taaaaaatta ggcttcccat tagacgacga aacattatct caagtgactt 540
 tgagaaaaga agatgttatc ggcgcggttga aatatttgat tcgtttgca atgggcgatg 600
 agaagacatc tatcgatgat attgaccatt tggcaaaccg acgagttcgc tctgttgag 660
 aactaattca gaatcactgt 680

<210> 268
 <211> 359
 <212> DNA
 <213> Chlamydia

<400> 268

| | | | | | | |
|------------|------------|-------------|------------|-------------|------------|-----|
| cttatgttct | ggagaatggt | gcaacaacat | attaatcgaa | ccagctcctc | ctagtaacat | 60 |
| agaaaccaag | cccttttgag | aaaaaacctg | tacttcgcat | ccttttagcca | tttggtgaat | 120 |
| agctcctaac | aaagagctaa | ttttttcctc | ttccttggtt | ttctgaggcg | ctgtggactc | 180 |
| taaatatagc | aagtgtctct | ggaacacctc | atcaacaatc | gcttgctcta | gattaggtat | 240 |
| agagactgtc | tctccatcaa | ttaaattggag | tttcaaagta | atatccccct | ccgtccctcc | 300 |
| atcacaagac | tctatgaaag | ctatctgatt | ccatcgagca | gaaatgtatg | gggaaatac | 359 |

<210> 269

<211> 124

<212> DNA

<213> Chlamydia

<400> 269

| | | | | | | |
|------------|------------|------------|------------|------------|------------|-----|
| gatcgaatca | attgagggag | ctcattaaca | agaatagctg | cagtttcttt | gcgttcttct | 60 |
| ggaataacaa | gaaataggta | atcggtacca | ttgatagaac | gaacacgaca | aatcgcagaa | 120 |
| ggtt | | | | | | 124 |

<210> 270

<211> 219

<212> DNA

<213> Chlamydia

<400> 270

| | | | | | | |
|------------|------------|------------|------------|-------------|------------|-----|
| gatcctgttg | ggcctagtaa | taatacgttg | gatttcccat | aactcacttg | tttatcctgc | 60 |
| ataagagcac | ggatacgctt | atagtggtta | tagacggcaa | ccgaaatcgt | ttttttcgcg | 120 |
| cgctcttgtc | caatgacata | agagtcgatg | tggcggttga | tttcttttagg | ggttaacact | 180 |
| ctcagacttg | ttggagagct | tgtggaagat | gttgcgac | | | 219 |

<210> 271

<211> 511

<212> DNA

<213> Chlamydia

<220>

<221> misc_feature

<222> (1)...(511)

<223> n = A,T,C or G

<400> 271

| | | | | | | |
|------------|------------|------------|------------|------------|------------|-----|
| ggatccgaat | tccgcacgag | gagaaaatat | aggagggttc | akcatcggaa | gatctaatag | 60 |
| acaaagaggt | tttggcatag | atggctcctc | cttgtaogtt | caacgatgat | tgggagggat | 120 |
| tgttatcgat | agcttggttc | ccagagaact | gacaagtccc | gctacattga | gagaatgtaa | 180 |
| cctgttctcc | atagatagct | cctcctacta | cacctgaata | agttggtggt | gctggagatg | 240 |
| atggtgcggc | tgctgcggct | gcttgtaggg | aagcagcagc | tgcagcaggt | gctgaagctg | 300 |
| ttggtgcgac | tcctgtggat | gaggagtttg | ctttgttggt | cgagaaagag | aagcctgatt | 360 |
| tcagattaga | aataattaca | gttttagcat | gtaagcctcc | accttctttc | ccaacaaggt | 420 |
| tctctgttac | agataaggag | actagangca | tctagtttta | aagatttttt | acagcagata | 480 |
| cctccaccta | tctctgtagc | ggagttctca | g | | | 511 |

<210> 272

<211> 598

<212> DNA

<213> Chlamydia

<400> 272

| | | | | | | |
|------------|------------|------------|------------|------------|------------|-----|
| ctcttcctct | cctcaatcta | gttctggagc | aactacagtc | tccgactcag | gagactctag | 60 |
| ctctggctca | aactcggata | cctcaaaaac | agttccagtc | acagctaaag | gcggtgggct | 120 |

| | | | | | | |
|------------|------------|------------|-------------|------------|------------|-----|
| ttatactgat | aagaatcttt | cgattactaa | catcacagga | attatcgaaa | ttgcaaataa | 180 |
| caaagcgaca | gatgttggag | gtggtgctta | cgtaaaaagga | acccttactt | gtaaaaactc | 240 |
| tcaccgtcta | caatttttga | aaaactcttc | cgataaacia | ggtggaggaa | tctacggaga | 300 |
| agacaacatc | accctatcta | atttgacagg | gaagactcta | ttccaagaga | atactgccaa | 360 |
| aaaagagggc | ggtggactct | tcataaaaag | tacagataaa | gctcttacia | tgacaggact | 420 |
| ggatagtttc | tgtttaatta | ataacacatc | agaaaaacat | ggtggtggga | gcctttgtta | 480 |
| ccaaagaaat | ctctcagact | tacacctctt | gatgtggaaa | caattccagg | aatcacgcct | 540 |
| gtacatggtg | aaacagtcac | tactggcaat | aaatctacag | gaggtaatgg | tggagggc | 598 |

<210> 273

<211> 126

<212> DNA

<213> Chlamydia

<400> 273

| | | | | | | |
|------------|------------|------------|-------------|------------|------------|-----|
| ggatccgaat | tcggcacgag | atgagcctta | tagtttaaca | aaagcttctc | acattccttc | 60 |
| gatatctttt | tattagccgt | ttttagcatc | ctaattgagat | ctcctcggtc | gtaacaaata | 120 |
| cgagag | | | | | | 126 |

<210> 274

<211> 264

<212> DNA

<213> Chlamydia

<400> 274

| | | | | | | |
|------------|------------|------------|------------|------------|------------|-----|
| ggatccgaat | tcggcacgag | ctctttttaa | tcttaattac | aaaaagacia | attaattcaa | 60 |
| tttttcaaaa | aagaatttaa | acattaattg | ttgtaaaaaa | acaatattta | ttctaaaata | 120 |
| ataaccatag | ttacggggga | atctctttca | tggtttattt | tagagctcat | caacctaggc | 180 |
| atagccttaa | aacatttcct | ttgaaagttc | accattcggt | ctccgataag | catcctcaaa | 240 |
| ttgctaaagc | tatgtggatt | acgg | | | | 264 |

<210> 275

<211> 359

<212> DNA

<213> Chlamydia

<400> 275

| | | | | | | |
|------------|------------|-------------|------------|------------|------------|-----|
| ggatccgaat | tcggcacgag | ataaaaacctg | aaccacaaca | aagatctaaa | acttcttgat | 60 |
| tttcagctgc | aaattctttt | agataaatat | caaccatttc | ttcagtttca | tatcttggaa | 120 |
| ttaaaacttg | ttctcttaaa | ttaattctag | tatttaagta | ttcaacatag | cccattatta | 180 |
| attgaattgg | ataattttgc | cttaataaatt | cacattcttt | ttcagtaatt | ttaggttcta | 240 |
| aaccgtaccg | ctttttttct | aaaattaatg | tttcttcatt | attcatttta | taagccactt | 300 |
| tcctttattt | tttgattttg | ttcttctggt | agtaatgctt | caataatagt | taataattt | 359 |

<210> 276

<211> 357

<212> DNA

<213> Chlamydia

<400> 276

| | | | | | | |
|------------|------------|------------|-------------|------------|------------|-----|
| aaaacaattg | atataatttt | ttttttcata | acttccagac | tcctttctag | aaaagtcttt | 60 |
| atgggtagta | gtgactctaa | cgttttttat | tattaagacg | atccccggag | atccttttaa | 120 |
| tgatgaaaac | ggaaacatcc | tttcgccaga | aacttttagca | ctattaaaga | atcgttacgg | 180 |
| gtagataaag | cctttattca | cccagtatct | tatctatttg | aaatgtctgc | taacactaga | 240 |
| tttcggggaa | tctcttatct | acaaagatcg | aaatctcagc | attattgctg | ccgctcttcc | 300 |
| atcttccgct | attcttggac | ttgaaagctt | gtgtttactc | gtgccgaatt | cggatcc | 357 |

<210> 277
 <211> 505
 <212> DNA
 <213> Chlamydia

<400> 277
 ggatccgaat tccggcacgag ctctgtgccga ttgcttgctt cagtcacccc atcgggtatag 60
 agcactaaaa gagactcctc ttcaagaacg agagtgtgaag caggggtgagg aggaacttca 120
 ggtaaaaatc ctaaggccat accaggatgc gacaggaaaag agatatctcc attaggagct 180
 cggagacacg ctgggttggt gccacaagaa tagtattcta gttctcgtgt tgcgtaatga 240
 taacaataaa tgcatagtgt tacaaacatc ccagattcag ctgtctgttg atagaagaga 300
 gcagctgttt gttgaacggc ttcttgaata gaggagagct cactcaaaaa ggtatgtaac 360
 atgtttttca ggaataagga gtaggcgcac gcattgactc ctttcccggg agcatcagca 420
 acgattagaa agagttttagc ttgggggacct tcgcctataa caaagatatc aaagaaatct 480
 cctctaccg taactgcagg aatat 505

<210> 278
 <211> 407
 <212> DNA
 <213> Chlamydia

<400> 278
 ggatccgaat tccggcacgag aactactgag caaattgggt atccaacttc ctctttacga 60
 aagaaaaaca gaaggcattc tccataccaa gatttggtgc atcgacaata aaactccaat 120
 ctttggtctc gctaactgga gcggtgctgg tatgattaaa aactttgaag acctattcat 180
 ccttcgcccc attacagaga cacagcttca ggcttttatg gacgtctggt ctcttctaga 240
 aacaaatagc tcctatctgt ccccagagag cgtgcttacg gccctactc cttcaagtag 300
 acctactcaa caagatacag attctgatga cgaacaaccg agtaccagcc agcaagctat 360
 ccgtatgaga aaataggatt agggaaacaa aacgacagca aaccaca 407

<210> 279
 <211> 351
 <212> DNA
 <213> Chlamydia

<400> 279
 ctctgtgccg ttacaggagg cttgtatcct ttaaaataga gtttttctta tgaccccatg 60
 tggcgatagg ccgggtctag cgccgatagt agaaatatcg gttgggtttt gtccttgagg 120
 ggatcgtata ctttttcaaa gtatgggtccc cgtatcgatt atctggaggc tcttatgtct 180
 ttttttcata ctagaaaata taagcttatc ctcagaggac tcttgtgttt agcaggctgt 240
 ttcttaatga acagctgttc ctctagtcca ggaaatcaac ccgctgatga gagcatctat 300
 gtcttgtcta tgaatcgcat gatttgtgat tctcgtgccg aattcggatc c 351

<210> 280
 <211> 522
 <212> DNA
 <213> Chlamydia

<400> 280
 ggatccgaat tccggcacgag cagaggaaaa aggcgatact cctcttgaag atcgtttcac 60
 agaagatctt tccgaagtct ctggagaaga ttttcgagga ttgaaaaatt cgttcgatga 120
 tgattcttct tctgacgaaa ttctcgatgc gctcacaagt aaattttctg atccacaat 180
 aaaggatcta gctcttgatt atctaattca aatagctccc tctgatggga aacttaagtc 240
 cgctctcatt caggcaaaagc atcaactgat gagccagaat cctcaggcga ttgttgaggg 300
 acgcaatgtt ctggttagctt cagaaaacct tgcttccaga gcaatacat ctccttcac 360
 gcttcgctcc ttatatctcc aagtaacctc atccccctct aattgcgcta atttacatga 420
 aatgcttgct tcttactcgc catcagagaa aaccgctgtt atggagtttc tagtgaatgg 480

catggttagca gattttaaatt cgaggggccc ttccattcct cc 522

<210> 281
<211> 577
<212> DNA
<213> Chlamydia

<400> 281
ggatccgaat tcggcacgag atgcttctat tacaattggt ttggatgcgg aaaaagctta 60
ccagcttatt ctgaaaaagt tgggagatca aattcttggt ggaattgctg atactattgt 120
tgatagtaca gtccaagata ttttagacaa aatcacaaca gacccttctc taggtttgtt 180
gaaagctttt aacaactttc caatcactaa taaaattcaa tgcaacgggt tattcactcc 240
caggaacatt gaaactttat taggaggaac tgaaatagga aaattcacag tcacacccaa 300
aagctctggg agcatgttct tagtctcagc agatattatt gcatcaagaa tgggaaggcgg 360
cgttgttcta gctttggtac gagaagggtga ttctaagccc tacgcgatta gttatggata 420
ctcatcaggc gttcctaatt tatgtagtct aagaaccaga attattaata caggattgac 480
tccgacaacg tattcattac gtgtaggcgg tttagaaaagc ggtgtggtat gggttaatgc 540
cctttctaatt ggcaatgata ttttaggaat aacaaat 577

<210> 282
<211> 607
<212> DNA
<213> Chlamydia

<400> 282
actmatcttc cccgggctcg agtgccggccg caagcttgct gacggagctc gatacaaaaa 60
tgtgtgcgtg tgaaccgctt cttcaaaaagc ttgtcttaaa agatattgtc tcgcttccgg 120
attagttaca tgtttaaaaa ttgctagaac aatattattc ccaaccaagc tctctgcggt 180
gctgaaaaaa cctaaattca aaagaatgac tcgccgctca tcttcagaaa gacgatccga 240
cttcataat tcgatgtctt tccccatggg gatctctgta gggagccagt tatttgcgca 300
gccattcaaa taatgttccc aagcccattt gtacttaata ggaacaagtt ggttgacatc 360
gacctggttg cagttcacta gacgcttgct atttagatta acgcgtttct gttttccatc 420
taaaatatct gcttgcataa gaaccgttaa ttttattggt aatttatatg attaattact 480
gacatgcttc acacccttct tccaaaagaac agacagggtc tttcttcgct ctttcaacaa 540
taattcctgc cgaagcagac ttattcttca tccaacgagg ctgaattcct ctcttattaa 600
tatctac 607

<210> 283
<211> 1077
<212> DNA
<213> Chlamydia

<400> 283
ggatccgaat tcggcacgag aagttaacga tgacgatttg ttcctttggt agagaaggag 60
caatcgaaac taaatgtgct agagcatgtg aagactccaa tgcaggaata atcccctcat 120
ttctagtaag caggaaaaaa gctcgtaacg cctcttcacg ggtgggtaat gtataaaagg 180
ctcgtcctga ctcatgcatt tcggcatgat ctggcccaac tgaaggataa tctaattccag 240
cggaatgga gtgagtttgt aatacttgct catcgctac tgaagaaga tacgaataaa 300
atccgtgga tactccagg cgccctgttg caaaacgtgc tgcattgttt cctgaagaaa 360
tgcccagctc tcccccttcc actccaatta attggacttt tggattcggg ataaaatgat 420
ggaaaaatcc aatagcgttg gagccacctc cgatacatgc aatcagaata tcaggatctc 480
ttcctgcaac tgcattgatt tgctctttca cttcagcgct tataacagac tgaaaaaatc 540
gaacgatatc gggataagg aaaggtccta aggccgatcc taagcaatag tgagtaaatg 600
agtgtgttgt tgcccaatct tgtagagctt gattaactgc atctttgagt ccacaagatc 660
ctttgtttac agaaacgact tcagcaccta aaaagcgcgt tttctctaca tttggtttct 720
gtcgttccac atcttttgct cccatgtata ctacacaatc taatcctaga taagcacacg 780
ctgtgtgctg tgctactcca tgttgtcccg cacctgtttc agctacaaca cgtgttttcc 840

| | | | | | | | |
|-------------|------------|------------|-------------|------------|-------------|------------|------|
| caagatat | ttt | agcaagcaaa | caactgaccaa | gagcattatt | cagtttatgt | gctcctgtat | 900 |
| gcaaaaagatc | ttcgcgttta | agaaatactc | tagggccatc | aatagctcga | gcaaaaattct | | 960 |
| taacttcagt | cagaggagtt | tgtctccccg | catagttttt | caaaatacaa | tctagttcag | | 1020 |
| ataaaaaact | ttgctgagtt | ttgagaatct | cccattccgc | ttttagattc | tgtatag | | 1077 |

<210> 284

<211> 407

<212> DNA

<213> Chlamydia

<400> 284

| | | | | | | |
|------------|------------|------------|-------------|------------|-------------|-----|
| ggatccgaat | tgggcacgag | aactactgag | caaattgggt | atccaacttc | ctcttttacga | 60 |
| aagaaaaaca | gaaggcattc | tccataccaa | gatttggtgc | atcgacaata | aaactccaat | 120 |
| ctttggctct | gctaactgga | gcgggtgctg | tatgattaaa | aactttgaag | acctattcat | 180 |
| ccttcgcccc | attacagaga | cacagcttca | ggcctttatg | gacgtctggg | ctctttctaga | 240 |
| aacaaatagc | tcctatctgt | ccccagagag | cgtgcttaacg | gcccctactc | cttcaagtag | 300 |
| acctactcaa | caagatacag | attctgatga | cgaacaaccg | agtaccagcc | agcaagctat | 360 |
| ccgtatgaga | aaataggatt | agggaaacaa | aacgcacagca | aaccaca | | 407 |

<210> 285

<211> 802

<212> DNA

<213> Chlamydia

<400> 285

| | | | | | | |
|-------------|------------|------------|------------|------------|------------|-----|
| ggatccgaat | tgggcacgag | ttagcttaat | gtctttgtca | tctctaccta | catttgcagc | 60 |
| taattctaca | ggcacaattg | gaatcggtta | tttacgtcgc | tgcctagaag | agtctgctct | 120 |
| tgggaaaaaa | gaatctgctg | aattcgaaaa | gatgaaaaac | caattctcta | acagcatggg | 180 |
| gaagatggag | gaagaactgt | cttctatcta | ttccaagctc | caagacgacg | attacatgga | 240 |
| aggtctatcc | gagaccgcag | ctgccgaatt | aagaaaaaaa | ttcgaagatc | tatctgcaga | 300 |
| atacaacaca | gctcaagggc | agtattacca | aatatattaa | caaagtaatc | tcaagcgcac | 360 |
| gcaaaaagatt | atggaagaag | tgaaaaaagc | ttctgaaact | gtgcgtattc | aagaaggctt | 420 |
| gtcagtcctt | cttaacgaag | atattgtctt | atctatcgat | agttcggcag | ataaaaccga | 480 |
| tgctgttatt | aaagttcttg | atgattcttt | tcaaaataat | taacatgcga | agctagccga | 540 |
| ggagtgcggt | atgtctcaat | ccacttattc | tcttgaaaca | ttagctgatt | ttttgaaagt | 600 |
| cgagtttcaa | ggaaatggag | ctactcttct | ttccggagtt | gaagagatcg | aggaagcaaa | 660 |
| aacggcacac | atcacattct | tagataatga | aaaatatgct | aaacatttaa | aatcatcgga | 720 |
| agctggcgct | atcatcatat | ctcgaacaca | gtttcaaaaa | tatcgagact | tgaataaaaa | 780 |
| ctttcttata | acttctgagt | ct | | | | 802 |

<210> 286

<211> 588

<212> DNA

<213> Chlamydia

<400> 286

| | | | | | | |
|------------|------------|------------|------------|------------|------------|-----|
| ggatccgaat | tgggcacgag | gcaatattta | ctcccaacat | tacggttcca | aataagcgat | 60 |
| aaggtcttct | aataaggaag | ttaatgtaag | aggctttttt | attgcttttc | gtaaggtagt | 120 |
| attgcaaccg | cacgcgattg | aatgatacgc | aagccatttc | catcatggaa | aagaaccctt | 180 |
| ggacaaaaat | acaaaggagg | ttcactccta | accagaaaaa | gggagagtta | gtttccatgg | 240 |
| gttttcttta | tatacacccg | tttcacacaa | ttaggagccg | cgtctagtat | ttggaataca | 300 |
| aattgtcccc | aagcgaattt | tgttcctggt | tcagggtatt | ctcctaattg | ttctgtcagc | 360 |
| catccgccta | tggtaacgca | attagctgta | gtaggaagat | caactccaaa | caggtcatag | 420 |
| aaatcagaaa | gctcataggt | gcctgcagca | ataacaacat | tcttgtctga | gtgagcgaat | 480 |
| tgtttaaaag | atgggcgatt | atgagctacc | tcacagagaa | ctatttttaa | tagatcattt | 540 |
| tgggtaatac | atccttctat | agacccatat | tcacaatga | taatctcg | | 588 |

<210> 287
 <211> 489
 <212> DNA
 <213> Chlamydia

<220>
 <221> misc_feature
 <222> (1)...(489)
 <223> n = A,T,C or G

<400> 287
 agtgcctatt gttttgcagg ctttgtctga tgatagcgat accgtacgtg agattgctgt 60
 acaagtagct gttatgtatg gttctagtgt cttactgcgc gccgtgggcg atttagcgaa 120
 aaatgattct tctattcaag tacgcatcac tgcttatcgt gctgcagccg tgttggagat 180
 acaagatctt gtgcctcatt tacgagttgt agtccaaaat acacaattag atggaacgga 240
 aagaagagaa gcttggagat ctttatgtgt tcttactcgg cctcatagtgt gtgtattaac 300
 tggcatagat caagctttaa tgacctgtga gatgttaaag gaatatcctg aaaagtgtac 360
 ggaagaacag attcgtacat tattggctgc agatcatcca gaagtgcagg tagctacttt 420
 acagatcatt ctgagaggag gtagagtatt ccggtcatct tctataatgg aatcggttct 480
 cgtgccgnt 489

<210> 288
 <211> 191
 <212> DNA
 <213> Chlamydia

<400> 288
 ggatccgaat tcaggatatg ctggttgggtt atcaataaaa agggttttgc ctttttttaa 60
 gacgactttg tagataacgc taggagctgt agcaataata tcgagatcaa attctctaga 120
 gattctctca aagatgattt ctaagtgcag cagtcctaaa aatccacagc ggaacccaaa 180
 tccgagagag t 191

<210> 289
 <211> 515
 <212> DNA
 <213> Chlamydia

<400> 289
 ggatccgaat tcggcacgag gagcgacgtg aaatagtgga atcttcccgt attottatta 60
 cttctgcgtt gccttacgca aatggtcctt tgcatttttg acatattacc ggtgcttatt 120
 tgcctgcaga tgtttatgcy cgttttcaga gactacaagg caaagagggt ttgtatattt 180
 gtgggttctga tgaatacggg atcgcaatta cccttaatgc agagtgggca ggcattgggt 240
 atcaagaata tgtcgacatg tatcataagc ttcataaaga taccttcaag aaattgggaa 300
 tttctgtaga tttcttttcc agaactacga acgcttatca tcttgcattt gtgcaagatt 360
 tctatcgaaa cttgcaggaa cgcggactgg tagagaatca ggtgaccgaa cagctgtatt 420
 ctgaggaaga aggggaagttt ttagcggacc gttatgttgt aggtacttgt cccaagtgtg 480
 ggtttgatcg agctcgagga gatgagtgtc agcag 515

<210> 290
 <211> 522
 <212> DNA
 <213> Chlamydia

<400> 290
 ggatccgaat tcggcacgag ggaggaatgg aagggccctc cgattktama tctgctacca 60
 tgccattcac tagaaactcc ataacagcgg ttttctctga tggcgagtaa gaagcaagca 120
 tttgatgtaa attagcgcaa ttagaggggg atgaggttac ttggaaatat aaggagcgaa 180

gcgatgaagg agatgtatatt gctctggaag caaagggtttc tgaagctaac agaacattgc 240
 gtcctccaac aatcgccctga ggattctggc tcatcagttg atgctttgcc tgaatgagag 300
 cggacttaag tttcccatca gagggagcta tttgaattag ataatcaaga gctagatcct 360
 ttattgtggg atcagaaaaat ttacttgtga gcgcacgcag aatttcgtca gaagaagaat 420
 catcatcgaa cgaatttttc aatcctcgaa aatcttctcc agagacttcg gaaagatcct 480
 ctgtgaaacg atcttcaaga ggagtatcgc ctttttccyc tg 522

<210> 291
 <211> 1002
 <212> DNA
 <213> Chlamydia

<400> 291
 atggcgacta acgcaattag atcggcagga agtgcagcaa gtaagatgct gctgccagtt 60
 gccaaagaac cagcggctgt cagctccttt gctcagaaag ggatttattg tattcaacaa 120
 ttttttaciaa accctgggaa taagttagca aagttttagg gggcaacaaa aagtttagat 180
 aaatgcttta agctaagtaa ggcgggtttct gactgtgtcg taggatcgct ggaagaggcg 240
 ggatgcacag gggacgcatt gacctccgcg agaaaacgccc aggggatggt aaaaacaact 300
 cgagaagttg ttgccttagc taatgtgctc aatggagctg ttccatctat cgttaactcg 360
 actcagaggt gttaccaata cacacgtcaa gccttcgagt taggaagcaa gacaaaagaa 420
 agaaaaacgc ctggggagta tagtaaaatg ctattaactc gaggtgatta cctattggca 480
 gcttccaggg aagcttgtac ggcagtcggt gcaacgactt actcagcgac attcgggtgtt 540
 ttacgtccgt taatgttaat caataaactc acagcaaaac cattcttaga caaagcgact 600
 gtaggcaatt ttggcacggc tgttgctgga attatgacca ttaatcatat ggcaggagtt 660
 gctggtgctg ttggcggaat cgcattagaa caaaagctgt tcaaacgtgc gaaggaatcc 720
 ctatacaatg agagatgtgc cttagaaaac caacaatctc agttgagtgg ggacgtgatt 780
 ctaagcgcgg aaagggcatt acgtaaagaa cacgttgcta ctctaaaaag aaatgtttta 840
 actcttcttg aaaaagcttt agagttggta gtggatggag tcaaactcat tcctttaccg 900
 attacagtgg cttgctccgc tgcaatttct ggagccttga cggcagcatc cgcaggaatt 960
 ggcttatata gcatatggca gaaaacaaag tctggcaaat aa 1002

<210> 292
 <211> 333
 <212> PRT
 <213> Chlamydia

<400> 292
 Met Ala Thr Asn Ala Ile Arg Ser Ala Gly Ser Ala Ala Ser Lys Met
 1 5 10 15
 Leu Leu Pro Val Ala Lys Glu Pro Ala Ala Val Ser Ser Phe Ala Gln
 20 25 30
 Lys Gly Ile Tyr Cys Ile Gln Gln Phe Phe Thr Asn Pro Gly Asn Lys
 35 40 45
 Leu Ala Lys Phe Val Gly Ala Thr Lys Ser Leu Asp Lys Cys Phe Lys
 50 55 60
 Leu Ser Lys Ala Val Ser Asp Cys Val Val Gly Ser Leu Glu Glu Ala
 65 70 75 80
 Gly Cys Thr Gly Asp Ala Leu Thr Ser Ala Arg Asn Ala Gln Gly Met
 85 90 95
 Leu Lys Thr Thr Arg Glu Val Val Ala Leu Ala Asn Val Leu Asn Gly
 100 105 110
 Ala Val Pro Ser Ile Val Asn Ser Thr Gln Arg Cys Tyr Gln Tyr Thr
 115 120 125
 Arg Gln Ala Phe Glu Leu Gly Ser Lys Thr Lys Glu Arg Lys Thr Pro
 130 135 140
 Gly Glu Tyr Ser Lys Met Leu Leu Thr Arg Gly Asp Tyr Leu Leu Ala
 145 150 155 160

Phe Gly Val Leu Asn Pro Glu Gly Ser Leu Ala Leu Arg Ala Thr Phe
 115 120 125
 Leu Ile Asp Lys His Gly Val Ile Arg His Ala Val Ile Asn Asp Leu
 130 135 140
 Pro Leu Gly Arg Ser Ile Asp Glu Glu Leu Arg Ile Leu Asp Ser Leu
 145 150 155 160
 Ile Phe Phe Glu Asn His Gly Met Val Cys Pro Ala Asn Trp Arg Ser
 165 170 175
 Gly Glu Arg Gly Met Val Pro Ser Glu Glu Gly Leu Lys Glu Tyr Phe
 180 185 190
 Gln Thr Met Asp
 195

<210> 295
 <211> 181
 <212> PRT
 <213> Chlamydia

<400> 295
 Lys Gly Gly Lys Met Ser Thr Thr Ile Ser Gly Asp Ala Ser Ser Leu
 5 10 15
 Pro Leu Pro Thr Ala Ser Cys Val Glu Thr Lys Ser Thr Ser Ser Ser
 20 25 30
 Thr Lys Gly Asn Thr Cys Ser Lys Ile Leu Asp Ile Ala Leu Ala Ile
 35 40 45
 Val Gly Ala Leu Val Val Val Ala Gly Val Leu Ala Leu Val Leu Cys
 50 55 60
 Ala Ser Asn Val Ile Phe Thr Val Ile Gly Ile Pro Ala Leu Ile Ile
 65 70 75 80
 Gly Ser Ala Cys Val Gly Ala Gly Ile Ser Arg Leu Met Tyr Arg Ser
 85 90 95
 Ser Tyr Ala Ser Leu Glu Ala Lys Asn Val Leu Ala Glu Gln Arg Leu
 100 105 110
 Arg Asn Leu Ser Glu Glu Lys Asp Ala Leu Ala Ser Val Ser Phe Ile
 115 120 125
 Asn Lys Met Phe Leu Arg Gly Leu Thr Asp Asp Leu Gln Ala Leu Glu
 130 135 140
 Ala Lys Val Met Glu Phe Glu Ile Asp Cys Leu Asp Arg Leu Glu Lys
 145 150 155 160
 Asn Glu Gln Ala Leu Leu Ser Asp Val Arg Leu Val Leu Ser Ser Tyr

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175

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<400> 297
Lys Gly Ser Leu Pro Ile Leu Gly Pro Phe Leu Asn Gly Lys Met Gly
      5              10              15

Phe Trp Arg Thr Ser Ile Met Lys Met Asn Arg Ile Trp Leu Leu Leu
      20              25              30

Leu Thr Phe Ser Ser Ala Ile His Ser Pro Val Arg Gly Glu Ser Leu
      35              40              45

Val Cys Lys Asn Ala Leu Gln Asp Leu Ser Phe Leu Glu His Leu Leu
      50              55              60

Gln Val Lys Tyr Ala Pro Lys Thr Trp Lys Glu Gln Tyr Leu Gly Trp
      65              70              75              80

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| | | | | | | | | | | | | | | | |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Asp | Leu | Val | Gln | Ser 85 | Ser | Val | Ser | Ala | Gln 90 | Gln | Lys | Leu | Arg | Thr 95 | Gln |
| Glu | Asn | Pro | Ser 100 | Thr | Ser | Phe | Cys | Gln 105 | Gln | Val | Leu | Ala | Asp 110 | Phe | Ile |
| Gly | Gly | Leu 115 | Asn | Asp | Phe | His | Ala 120 | Gly | Val | Thr | Phe | Phe 125 | Ala | Ile | Glu |
| Ser | Ala 130 | Tyr | Leu | Pro | Tyr | Thr 135 | Val | Gln | Lys | Ser | Ser 140 | Asp | Gly | Arg | Phe |
| Tyr 145 | Phe | Val | Asp | Ile | Met 150 | Thr | Phe | Ser | Ser | Glu 155 | Ile | Arg | Val | Gly | Asp 160 |
| Glu | Leu | Leu | Glu | Val 165 | Asp | Gly | Ala | Pro 170 | Val | Gln | Asp | Val | Leu | Ala 175 | Thr |
| Leu | Tyr | Gly | Ser 180 | Asn | His | Lys | Gly | Thr 185 | Ala | Ala | Glu | Glu | Ser 190 | Ala | Ala |
| Leu | Arg | Thr 195 | Leu | Phe | Ser | Arg | Met 200 | Ala | Ser | Leu | Gly | His 205 | Lys | Val | Pro |
| Ser | Gly 210 | Arg | Thr | Thr | Leu | Lys 215 | Ile | Arg | Arg | Pro | Phe 220 | Gly | Thr | Thr | Arg |
| Glu 225 | Val | Arg | Val | Lys | Trp 230 | Arg | Tyr | Val | Pro | Glu 235 | Gly | Val | Gly | Asp | Leu 240 |
| Ala | Thr | Ile | Ala | Pro 245 | Ser | Ile | Arg | Ala | Pro 250 | Gln | Leu | Gln | Lys | Ser 255 | Met |
| Arg | Ser | Phe | Phe 260 | Pro | Lys | Lys | Asp | Asp 265 | Ala | Phe | His | Arg | Ser 270 | Ser | Ser |
| Leu | Phe | Tyr 275 | Ser | Pro | Met | Val | Pro 280 | His | Phe | Trp | Ala | Glu 285 | Leu | Arg | Asn |
| His | Tyr 290 | Ala | Thr | Ser | Gly | Leu 295 | Lys | Ser | Gly | Tyr | Asn 300 | Ile | Gly | Ser | Thr |
| Asp 305 | Gly | Phe | Leu | Pro | Val 310 | Ile | Gly | Pro | Val | Ile 315 | Trp | Glu | Ser | Glu | Gly 320 |
| Leu | Phe | Arg | Ala | Tyr 325 | Ile | Ser | Ser | Val | Thr 330 | Asp | Gly | Asp | Gly | Lys 335 | Ser |
| His | Lys | Val | Gly 340 | Phe | Leu | Arg | Ile | Pro 345 | Thr | Tyr | Ser | Trp | Gln 350 | Asp | Met |
| Glu | Asp | Phe 355 | Asp | Pro | Ser | Gly | Pro 360 | Pro | Pro | Trp | Glu | Glu 365 | Phe | Ala | Lys |
| Ile | Ile 370 | Gln | Val | Phe | Ser | Ser 375 | Asn | Thr | Glu | Ala | Leu 380 | Ile | Ile | Asp | Gln |

Thr Asn Asn Pro Gly Gly Ser Val Leu Tyr Leu Tyr Ala Leu Leu Ser
385 390 395 400

Met Leu Thr Asp Arg Pro Leu Glu Leu Pro Lys His Arg Met Ile Leu
405 410 415

Thr Gln Asp Glu Val Val Asp Ala Leu Asp Trp Leu Thr Leu Leu Glu
420 425 430

Asn Val Asp Thr Asn Val Glu Ser Arg Leu Ala Leu Gly Asp Asn Met
435 440 445

Glu Gly Tyr Thr Val Asp Leu Gln Val Ala Glu Tyr Leu Lys Ser Phe
450 455 460

Gly Arg Gln Val Leu Asn Cys Trp Ser Lys Gly Asp Ile Glu Leu Ser
465 470 475 480

Thr Pro Ile Pro Leu Phe Gly Phe
485

<210> 298

<211> 140

<212> PRT

<213> Chlamydia

<400> 298

Arg Ile Asp Ile Ser Ser Val Thr Phe Phe Ile Gly Ile Leu Leu Ala
5 10 15

Val Asn Ala Leu Thr Tyr Ser His Val Leu Arg Asp Leu Ser Val Ser
20 25 30

Met Asp Ala Leu Phe Ser Arg Asn Thr Leu Ala Val Leu Leu Gly Leu
35 40 45

Val Ser Ser Val Leu Asp Asn Val Pro Leu Val Ala Ala Thr Ile Gly
50 55 60

Met Tyr Asp Leu Pro Met Asn Asp Pro Leu Trp Lys Leu Ile Ala Tyr
65 70 75 80

Thr Ala Gly Thr Gly Gly Ser Ile Leu Ile Ile Gly Ser Ala Ala Gly
85 90 95

Val Ala Tyr Met Gly Met Glu Lys Val Ser Phe Gly Trp Tyr Val Lys
100 105 110

His Ala Ser Trp Ile Ala Leu Ala Ser Tyr Phe Gly Gly Leu Ala Val
115 120 125

Tyr Phe Leu Met Glu Asn Cys Val Asn Leu Phe Val
130 135 140

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| | | | | | | | | | | | | | | | |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| <400> 299 | | | | | | | | | | | | | | | |
| His | Gln | Glu | Ile | Ala 5 | Asp | Ser | Pro | Leu | Val 10 | Lys | Lys | Ala | Glu | Glu 15 | Gln |
| Ile | Asn | Gln | Ala 20 | Gln | Gln | Asp | Ile | Gln 25 | Thr | Ile | Thr | Pro | Ser 30 | Gly | Leu |
| Asp | Ile | Pro 35 | Ile | Val | Gly | Pro | Ser 40 | Gly | Ser | Ala | Ala | Ser 45 | Ala | Gly | Ser |
| Ala | Ala 50 | Gly | Ala | Leu | Lys | Ser 55 | Ser | Asn | Asn | Ser | Gly 60 | Arg | Ile | Ser | Leu |
| Leu 65 | Leu | Asp | Asp | Val | Asp 70 | Asn | Glu | Met | Ala | Ala 75 | Ile | Ala | Met | Gln | Gly 80 |
| Phe | Arg | Ser | Met | Ile 85 | Glu | Gln | Phe | Asn 90 | Val | Asn | Asn | Pro | Ala | Thr 95 | Ala |
| Lys | Glu | Leu | Gln 100 | Ala | Met | Glu | Ala | Gln 105 | Leu | Thr | Ala | Met | Ser 110 | Asp | Gln |
| Leu | Val | Gly 115 | Ala | Asp | Gly | Glu | Leu 120 | Pro | Ala | Glu | Ile | Gln 125 | Ala | Ile | Lys |
| Asp | Ala 130 | Leu | Ala | Gln | Ala | Leu 135 | Lys | Gln | Pro | Ser | Ala 140 | Asp | Gly | Leu | Ala |
| Thr 145 | Ala | Met | Gly | Gln | Val 150 | Ala | Phe | Ala | Ala | Ala 155 | Lys | Val | Gly | Gly | Gly 160 |
| Ser | Ala | Gly | Thr | Ala 165 | Gly | Thr | Val | Gln | Met 170 | Asn | Val | Lys | Gln | Leu 175 | Tyr |
| Lys | Thr | Ala | Phe 180 | Ser | Ser | Thr | Ser | Ser 185 | Ser | Ser | Tyr | Ala | Ala 190 | Ala | Leu |
| Ser | Asp | Gly 195 | Tyr | Ser | Ala | Tyr | Lys 200 | Thr | Leu | Asn | Ser | Leu 205 | Tyr | Ser | Glu |
| Ser | Arg 210 | Ser | Gly | Val | Gln | Ser 215 | Ala | Ile | Ser | Gln | Thr 220 | Ala | Asn | Pro | Ala |
| Leu 225 | Ser | Arg | Ser | Val | Ser 230 | Arg | Ser | Gly | Ile | Glu 235 | Ser | Gln | Gly | Arg | Ser 240 |
| Ala | Asp | Ala | Ser | Gln 245 | Arg | Ala | Ala | Glu | Thr 250 | Ile | Val | Arg | Asp | Ser 255 | Gln |
| Thr | Leu | Gly | Asp 260 | Val | Tyr | Ser | Arg 265 | Leu | Gln | Val | Leu | Asp 270 | Ser | Leu | Met |

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<210> 300
<211> 207
<212> PRT
<213> Chlamydia

<400> 300
Ser Ser Lys Ile Val Ser Leu Cys Glu Gly Ala Val Ala Asp Ala Arg
      5      10
Met Cys Lys Ala Glu Leu Ile Lys Lys Glu Ala Asp Ala Tyr Leu Phe
      20      25      30
Cys Glu Lys Ser Gly Ile Tyr Leu Thr Lys Lys Glu Gly Ile Leu Ile
      35      40      45
Pro Ser Ala Gly Ile Asp Glu Ser Asn Thr Asp Gln Pro Phe Val Leu
      50      55      60
Tyr Pro Lys Asp Ile Leu Gly Ser Cys Asn Arg Ile Gly Glu Trp Leu
      65      70      75      80
Arg Asn Tyr Phe Arg Val Lys Glu Leu Gly Val Ile Ile Thr Asp Ser
      85      90      95
His Thr Thr Pro Met Arg Arg Gly Val Leu Gly Ile Gly Leu Cys Trp
      100      105      110
Tyr Gly Phe Ser Pro Leu His Asn Tyr Ile Gly Ser Leu Asp Cys Phe
      115      120      125
Gly Arg Pro Leu Gln Met Thr Gln Ser Asn Leu Val Asp Ala Leu Ala
      130      135      140
Val Ala Ala Val Val Cys Met Gly Glu Gly Asn Glu Gln Thr Pro Leu
      145      150      155      160
Ala Val Ile Glu Gln Ala Pro Asn Met Val Tyr His Ser Tyr Pro Thr
      165      170      175

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Ser Arg Glu Glu Tyr Cys Ser Leu Arg Ile Asp Glu Thr Glu Asp Leu
 180 185 190

Tyr Gly Pro Phe Leu Gln Ala Val Thr Trp Ser Gln Glu Lys Lys
 195 200 205

<210> 301
 <211> 183
 <212> PRT
 <213> Chlamydia

<400> 301
 Ile Pro Pro Ala Pro Arg Gly His Pro Gln Ile Glu Val Thr Phe Asp
 5 10 15

Ile Asp Ala Asn Gly Ile Leu His Val Ser Ala Lys Asp Ala Ala Ser
 20 25 30

Gly Arg Glu Gln Lys Ile Arg Ile Glu Ala Ser Ser Gly Leu Lys Glu
 35 40 45

Asp Glu Ile Gln Gln Met Ile Arg Asp Ala Glu Leu His Lys Glu Glu
 50 55 60

Asp Lys Gln Arg Lys Glu Ala Ser Asp Val Lys Asn Glu Ala Asp Gly
 65 70 75 80

Met Ile Phe Arg Ala Glu Lys Ala Val Lys Asp Tyr His Asp Lys Ile
 85 90 95

Pro Ala Glu Leu Val Lys Glu Ile Glu Glu His Ile Glu Lys Val Arg
 100 105 110

Gln Ala Ile Lys Glu Asp Ala Ser Thr Thr Ala Ile Lys Ala Ala Ser
 115 120 125

Asp Glu Leu Ser Thr Arg Met Gln Lys Ile Gly Glu Ala Met Gln Ala
 130 135 140

Gln Ser Ala Ser Ala Ala Ala Ser Ser Ala Ala Asn Ala Gln Gly Gly
 145 150 155 160

Pro Asn Ile Asn Ser Glu Asp Leu Lys Lys His Ser Phe Ser Thr Arg
 165 170 175

Pro Pro Ala Gly Gly Ser Ala
 180

<210> 302
 <211> 232
 <212> PRT
 <213> Chlamydia

<400> 302

090411-0430
 T03E3H0"22E7E860

Met Thr Lys His Gly Lys Arg Ile Arg Gly Ile Gln Glu Thr Tyr Asp
 5 10 15
 Leu Ala Lys Ser Tyr Ser Leu Gly Glu Ala Ile Asp Ile Leu Lys Gln
 20 25 30
 Cys Pro Thr Val Arg Phe Asp Gln Thr Val Asp Val Ser Val Lys Leu
 35 40 45
 Gly Ile Asp Pro Arg Lys Ser Asp Gln Gln Ile Arg Gly Ser Val Ser
 50 55 60
 Leu Pro His Gly Thr Gly Lys Val Leu Arg Ile Leu Val Phe Ala Ala
 65 70 75 80
 Gly Asp Lys Ala Ala Glu Ala Ile Glu Ala Gly Ala Asp Phe Val Gly
 85 90 95
 Ser Asp Asp Leu Val Glu Lys Ile Lys Gly Gly Trp Val Asp Phe Asp
 100 105 110
 Val Ala Val Ala Thr Pro Asp Met Met Arg Glu Val Gly Lys Leu Gly
 115 120 125
 Lys Val Leu Gly Pro Arg Asn Leu Met Pro Thr Pro Lys Ala Gly Thr
 130 135 140
 Val Thr Thr Asp Val Val Lys Thr Ile Ala Glu Leu Arg Lys Gly Lys
 145 150 155 160
 Ile Glu Phe Lys Ala Asp Arg Ala Gly Val Cys Asn Val Gly Val Ala
 165 170 175
 Lys Leu Ser Phe Asp Ser Ala Gln Ile Lys Glu Asn Val Glu Ala Leu
 180 185 190
 Cys Ala Ala Leu Val Lys Ala Lys Pro Ala Thr Ala Lys Gly Gln Tyr
 195 200 205
 Leu Val Asn Phe Thr Ile Ser Ser Thr Met Gly Pro Gly Val Thr Val
 210 215 220
 Asp Thr Arg Glu Leu Ile Ala Leu
 225 230

<210> 303
 <211> 238
 <212> PRT
 <213> chlamydia

<400> 303
 Ile Asn Ser Lys Leu Glu Thr Lys Asn Leu Ile Tyr Leu Lys Leu Lys
 5 10 15
 Ile Lys Lys Ser Phe Lys Met Gly Asn Ser Gly Phe Tyr Leu Tyr Asn
 20 25 30

Thr Gln Asn Cys Val Phe Ala Asp Asn Ile Lys Val Gly Gln Met Thr
 35 40 45
 Glu Pro Leu Lys Asp Gln Gln Ile Ile Leu Gly Thr Thr Ser Thr Pro
 50 55 60
 Val Ala Ala Lys Met Thr Ala Ser Asp Gly Ile Ser Leu Thr Val Ser
 65 70 75 80
 Asn Asn Pro Ser Thr Asn Ala Ser Ile Thr Ile Gly Leu Asp Ala Glu
 85 90 95
 Lys Ala Tyr Gln Leu Ile Leu Glu Lys Leu Gly Asp Gln Ile Leu Gly
 100 105 110
 Gly Ile Ala Asp Thr Ile Val Asp Ser Thr Val Gln Asp Ile Leu Asp
 115 120 125
 Lys Ile Thr Thr Asp Pro Ser Leu Gly Leu Leu Lys Ala Phe Asn Asn
 130 135 140
 Phe Pro Ile Thr Asn Lys Ile Gln Cys Asn Gly Leu Phe Thr Pro Arg
 145 150 155 160
 Asn Ile Glu Thr Leu Leu Gly Gly Thr Glu Ile Gly Lys Phe Thr Val
 165 170 175
 Thr Pro Lys Ser Ser Gly Ser Met Phe Leu Val Ser Ala Asp Ile Ile
 180 185 190
 Ala Ser Arg Met Glu Gly Gly Val Val Leu Ala Leu Val Arg Glu Gly
 195 200 205
 Asp Ser Lys Pro Tyr Ala Ile Ser Tyr Gly Tyr Ser Ser Gly Val Pro
 210 215 220
 Asn Leu Cys Ser Leu Arg Thr Arg Ile Ile Asn Thr Gly Leu
 225 230 235
 <210> 304
 <211> 133
 <212> PRT
 <213> Chlamydia
 <400> 304
 His Met His His His His His His Met Ala Ser Ile Cys Gly Arg Leu
 5 10 15
 Gly Ser Gly Thr Gly Asn Ala Leu Lys Ala Phe Phe Thr Gln Pro Ser
 20 25 30
 Asn Lys Met Ala Arg Val Val Asn Lys Thr Lys Gly Met Asp Lys Thr
 35 40 45
 Val Lys Val Ala Lys Ser Ala Ala Glu Leu Thr Ala Asn Ile Leu Glu
 50 55 60

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Gln Ala Gly Gly Ala Gly Ser Ser Ala His Ile Thr Ala Ser Gln Val
 65 70 75 80
 Ser Lys Gly Leu Gly Asp Thr Arg Thr Val Val Ala Leu Gly Asn Ala
 85 90 95
 Phe Asn Gly Ala Leu Pro Gly Thr Val Gln Ser Ala Gln Ser Phe Phe
 100 105 110
 Ser His Met Lys Ala Ala Ser Gln Lys Thr Gln Glu Gly Asp Glu Gly
 115 120 125
 Leu Thr Ala Asp Leu
 130

<210> 305
 <211> 125
 <212> PRT
 <213> Chlamydia

<400> 305
 Met Ala Ser Ile Cys Gly Arg Leu Gly Ser Gly Thr Gly Asn Ala Leu
 5 10 15
 Lys Ala Phe Phe Thr Gln Pro Ser Asn Lys Met Ala Arg Val Val Asn
 20 25 30
 Lys Thr Lys Gly Met Asp Lys Thr Val Lys Val Ala Lys Ser Ala Ala
 35 40 45
 Glu Leu Thr Ala Asn Ile Leu Glu Gln Ala Gly Gly Ala Gly Ser Ser
 50 55 60
 Ala His Ile Thr Ala Ser Gln Val Ser Lys Gly Leu Gly Asp Thr Arg
 65 70 75 80
 Thr Val Val Ala Leu Gly Asn Ala Phe Asn Gly Ala Leu Pro Gly Thr
 85 90 95
 Val Gln Ser Ala Gln Ser Phe Phe Ser His Met Lys Ala Ala Ser Gln
 100 105 110
 Lys Thr Gln Glu Gly Asp Glu Gly Leu Thr Ala Asp Leu
 115 120 125

<210> 306
 <211> 38
 <212> DNA
 <213> Chlamydia trachomatis

<400> 306
 gagagcggcc gctcatgttt ataacaaagg aacttatg

<210> 307
 <211> 39
 <212> DNA
 <213> Chlamydia trachomatis

<400> 307
 gagagcggcc gcttacttag gtgagaagaa gggagtttc

39

<210> 308
 <211> 1860
 <212> DNA
 <213> Chlamydia trachomatis

<400> 308
 atgcatcacc atcaccatca cacggccgcg tccgataact tccagctgtc ccaggggtggg 60
 cagggattcg ccattccgat cgggcaggcg atggcgatcg cgggccagat caagcttccc 120
 accgttcata tcgggcctac cgccttcctc ggcttgggtg ttgtcgacaa caacggcaac 180
 ggcgcacgag tccaacgcgt ggtcgggagc gctccggcgg caagtctcgg catctccacc 240
 ggcgacgtga tcaccgcggt cgacggcgct ccgatcaact cggccaccgc gatggcggac 300
 gcgcttaacg ggcatcatcc cggtgacgtc atctcgggtga cctggcaaac caagtcgggc 360
 ggcacgcgta cagggaaacgt gacattggcc gagggacccc cggccgaatt ctgcagatat 420
 ccatcacact ggcggccgct catgtttata acaaaggaac ttatgaatcg agttatagaa 480
 atccatgctc actacgatca aagacaactt tctcaatctc caaatataaa cttcttagta 540
 catcatcctt atcttactct tattcccaag ttctacttag gagctctaag cgtctatgct 600
 ccttattcgt ttgcagaaat ggaattagct atttctggag ataaacaagg taaagatcga 660
 gataacctta ccatgatctc ttctgtcct gaaggcacta attacatcat caatcgcaaa 720
 ctcatactca gtgatttctc gttactaaat aaagtttcat cagggggagc ctttcggaat 780
 ctacgaggga aaatttcctt cttaggaaaa aattcttctg cgtccattca ttttaaacac 840
 attaatatca atggttttgg agccggagtc ttttctgaat cctctattga atttactgat 900
 ttacgaaaac ttgttgcttt tggatctgaa agcacaggag gaatttttac tgcgaaagag 960
 gacatctctt ttaaaaacaa ccaccacatt gccttccgca ataatatcac caaagggaat 1020
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 caaattactt tcgaaggcaa tagcgctgtg catggagggtg ctatctacaa taagaatggc 1260
 cttgtcgagt tcttaggaaa tgcaggacct cttgccttta aagagaacac aacaatagct 1320
 aacgggggag ctatatacac aagtaatttc aaagcgaatc aacaaacatc cccatttcta 1380
 ttctctcaaa atcatgcgaa taagaaaggc ggagcgattt acgcgcaata tgtgaactta 1440
 gaacagaatc aagatactat tcgctttgaa aaaaataaccg ctaaagaagg cgggtggagcc 1500
 atcacctctt ctcaatgctc aattactgct cataatacca tcaacttttc cgataatgct 1560
 gccggagatc ttggaggagg agcaattctt ctagaaggga aaaaaccttc tctaaccctg 1620
 attgctcata gtggtaatat tgcatttagc ggcaatacca tgcttcatat caccacaaaa 1680
 gcttccctag atcgacacaa ttctatctta atcaaagaag ctccctataa aatccaactt 1740
 gcagcgaaca aaaaccattc tattcatttc tttgatcctg tcatggcatt gtcagcatca 1800
 tcttccccta tacaatatca tgctcctgag tatgaaactc ccttcttctc acctaatgaa 1860

<210> 309
 <211> 619
 <212> PRT
 <213> Chlamydia trachomatis

<400> 309
 Met His His His His His His Thr Ala Ala Ser Asp Asn Phe Gln Leu
 1 5 10 15
 Ser Gln Gly Gly Gln Gly Phe Ala Ile Pro Ile Gly Gln Ala Met Ala
 20 25 30
 Ile Ala Gly Gln Ile Lys Leu Pro Thr Val His Ile Gly Pro Thr Ala

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | | 35 | | | | 40 | | | | 45 | | | | | |
| Phe | Leu | Gly | Leu | Gly | Val | Val | Asp | Asn | Asn | Gly | Asn | Gly | Ala | Arg | Val |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Gln | Arg | Val | Val | Gly | Ser | Ala | Pro | Ala | Ala | Ser | Leu | Gly | Ile | Ser | Thr |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Gly | Asp | Val | Ile | Thr | Ala | Val | Asp | Gly | Ala | Pro | Ile | Asn | Ser | Ala | Thr |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Ala | Met | Ala | Asp | Ala | Leu | Asn | Gly | His | His | Pro | Gly | Asp | Val | Ile | Ser |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Val | Thr | Trp | Gln | Thr | Lys | Ser | Gly | Gly | Thr | Arg | Thr | Gly | Asn | Val | Thr |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Leu | Ala | Glu | Gly | Pro | Pro | Ala | Glu | Phe | Cys | Arg | Tyr | Pro | Ser | His | Trp |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Arg | Pro | Leu | Met | Phe | Ile | Thr | Lys | Glu | Leu | Met | Asn | Arg | Val | Ile | Glu |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ile | His | Ala | His | Tyr | Asp | Gln | Arg | Gln | Leu | Ser | Gln | Ser | Pro | Asn | Thr |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Asn | Phe | Leu | Val | His | His | Pro | Tyr | Leu | Thr | Leu | Ile | Pro | Lys | Phe | Leu |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Leu | Gly | Ala | Leu | Ile | Val | Tyr | Ala | Pro | Tyr | Ser | Phe | Ala | Glu | Met | Glu |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Leu | Ala | Ile | Ser | Gly | His | Lys | Gln | Gly | Lys | Asp | Arg | Asp | Thr | Phe | Thr |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Met | Ile | Ser | Ser | Cys | Pro | Glu | Gly | Thr | Asn | Tyr | Ile | Ile | Asn | Arg | Lys |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Leu | Ile | Leu | Ser | Asp | Phe | Ser | Leu | Leu | Asn | Lys | Val | Ser | Ser | Gly | Gly |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Ala | Phe | Arg | Asn | Leu | Ala | Gly | Lys | Ile | Ser | Phe | Leu | Gly | Lys | Asn | Ser |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Ser | Ala | Ser | Ile | His | Phe | Lys | His | Ile | Asn | Ile | Asn | Gly | Phe | Gly | Ala |
| | | 275 | | | | | 280 | | | | | | 285 | | |
| Gly | Val | Phe | Ser | Glu | Ser | Ser | Ile | Glu | Phe | Thr | Asp | Leu | Arg | Lys | Leu |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Val | Ala | Phe | Gly | Ser | Glu | Ser | Thr | Gly | Gly | Ile | Phe | Thr | Ala | Lys | Glu |
| | 305 | | | | 310 | | | | | 315 | | | | | 320 |
| Asp | Ile | Ser | Phe | Lys | Asn | Asn | His | His | Ile | Ala | Phe | Arg | Asn | Asn | Ile |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Thr | Lys | Gly | Asn | Gly | Gly | Val | Ile | Gln | Leu | Gln | Gly | Asp | Met | Lys | Gly |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Ser | Val | Ser | Phe | Val | Asp | Gln | Arg | Gly | Ala | Ile | Ile | Phe | Thr | Asn | Asn |
| | | 355 | | | | 360 | | | | | | 365 | | | |
| Gln | Ala | Val | Thr | Ser | Ser | Ser | Met | Lys | His | Ser | Gly | Arg | Gly | Gly | Ala |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Ile | Ser | Gly | Asp | Phe | Ala | Gly | Ser | Arg | Ile | Leu | Phe | Leu | Asn | Asn | Gln |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Gln | Ile | Thr | Phe | Glu | Gly | Asn | Ser | Ala | Val | His | Gly | Gly | Ala | Ile | Tyr |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Asn | Lys | Asn | Gly | Leu | Val | Glu | Phe | Leu | Gly | Asn | Ala | Gly | Pro | Leu | Ala |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Phe | Lys | Glu | Asn | Thr | Thr | Ile | Ala | Asn | Gly | Gly | Ala | Ile | Tyr | Thr | Ser |
| | | 435 | | | | 440 | | | | | | 445 | | | |
| Asn | Phe | Lys | Ala | Asn | Gln | Gln | Thr | Ser | Pro | Ile | Leu | Phe | Ser | Gln | Asn |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| His | Ala | Asn | Lys | Lys | Gly | Gly | Ala | Ile | Tyr | Ala | Gln | Tyr | Val | Asn | Leu |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Glu | Gln | Asn | Gln | Asp | Thr | Ile | Arg | Phe | Glu | Lys | Asn | Thr | Ala | Lys | Glu |
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Gly Gly Gly Ala Ile Thr Ser Ser Gln Cys Ser Ile Thr Ala His Asn
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 545 550 555 560
 Ala Ser Leu Asp Arg His Asn Ser Ile Leu Ile Lys Glu Ala Pro Tyr
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 Lys Ile Gln Leu Ala Ala Asn Lys Asn His Ser Ile His Phe Phe Asp
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33

<210> 312

<211> 2076

<212> DNA

<213> Chlamydia trachomatis

<400> 312

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| cagggattcg | ccattccgat | cgggcaggcg | atggcgatcg | cgggccagat | caagcttccc | 120 |
| accgttcata | tcgggcctac | cgcttcctc | ggcttgggtg | ttgtcgacaa | caacggcaac | 180 |
| ggcgacgag | tccaacgcgt | ggtcgggagc | gctccggcgg | caagtctcgg | catctccacc | 240 |
| ggcgacgtga | tcaccgcggt | cgacggcgct | ccgatcaact | cggccaccgc | gatggcggac | 300 |
| gcgcttaacg | ggcatcatcc | cggtgacgtc | atctcggtga | cctggcaaac | caagtcgggc | 360 |
| ggcacgcgta | cagggaaacgt | gacattggcc | gagggacccc | cggccgaatt | ctgcagatat | 420 |
| ccatcacact | ggcgcccgct | ccattctatt | catttctttg | atcctgtcat | ggcattgtca | 480 |
| gcatcatctt | cccctataca | aatcaatgct | cctgagtatg | aaactccctt | cttctcacct | 540 |
| aagggtatga | tcgttttctc | gggtgcgaat | cttttagatg | atgctaaggga | agatgttgca | 600 |
| aatagaacat | cgatttttaa | ccaaccggtt | catctatata | atggcaccct | atctatcgaa | 660 |
| aatggagccc | atctgattgt | ccaaagcttc | aaacagaccg | gaggacgtat | cagtttatct | 720 |
| ccaggatcct | ccttggctct | atacacgatg | aactcgttct | tccatggcaa | catatccagc | 780 |
| aaagaacccc | tagaaattaa | tggtttaagc | tttggagtag | atatctctcc | ttctaattct | 840 |
| caagcagaga | tccgtgccgg | caacgctcct | ttacgattat | ccggatcccc | atctatccat | 900 |
| gacctgaag | gattattcta | cgaaaatcgc | gatactgcag | catcaccata | ccaaatggaa | 960 |
| atcttgctca | cctctgataa | aactgtagat | atctccaaat | ttactactga | ttctctagtt | 1020 |
| acgaacaaac | aatcaggatt | ccaaggagcc | tggcatttta | gctggcagcc | aaatactata | 1080 |

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<210> 313

<211> 691

<212> PRT

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<400> 313

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          35          40          45
Phe Leu Gly Leu Gly Val Val Asp Asn Asn Gly Asn Gly Ala Arg Val
          50          55          60
Gln Arg Val Val Gly Ser Ala Pro Ala Ala Ser Leu Gly Ile Ser Thr
65          70          75          80
Gly Asp Val Ile Thr Ala Val Asp Gly Ala Pro Ile Asn Ser Ala Thr
          85          90          95
Ala Met Ala Asp Ala Leu Asn Gly His His Pro Gly Asp Val Ile Ser
          100          105          110
Val Thr Trp Gln Thr Lys Ser Gly Gly Thr Arg Thr Gly Asn Val Thr
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Leu Ala Glu Gly Pro Pro Ala Glu Phe Cys Arg Tyr Pro Ser His Trp
          130          135          140
Arg Pro Leu His Ser Ile His Phe Phe Asp Pro Val Met Ala Leu Ser
          145          150          155          160
Ala Ser Ser Ser Pro Ile Gln Ile Asn Ala Pro Glu Tyr Glu Thr Pro
          165          170          175
Phe Phe Ser Pro Lys Gly Met Ile Val Phe Ser Gly Ala Asn Leu Leu
          180          185          190
Asp Asp Ala Arg Glu Asp Val Ala Asn Arg Thr Ser Ile Phe Asn Gln
          195          200          205
Pro Val His Leu Tyr Asn Gly Thr Leu Ser Ile Glu Asn Gly Ala His
          210          215          220
Leu Ile Val Gln Ser Phe Lys Gln Thr Gly Gly Arg Ile Ser Leu Ser
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<210> 317
 <211> 646

<212> PRT

<213> Chlamydia trachomatis

<400> 317

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| Ser | Gln | Gly | Gly | Gln | Gly | Phe | Ala | Ile | Pro | Ile | Gly | Gln | Ala | Met | Ala |
| | | 20 | | | | | | 25 | | | | 30 | | | |
| Ile | Ala | Gly | Gln | Ile | Lys | Leu | Pro | Thr | Val | His | Ile | Gly | Pro | Thr | Ala |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Phe | Leu | Gly | Leu | Gly | Val | Val | Asp | Asn | Asn | Gly | Asn | Gly | Ala | Arg | Val |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Gln | Arg | Val | Val | Gly | Ser | Ala | Pro | Ala | Ala | Ser | Leu | Gly | Ile | Ser | Thr |
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| | | | | 85 | | | | | 90 | | | | | | 95 |
| Ala | Met | Ala | Asp | Ala | Leu | Asn | Gly | His | His | Pro | Gly | Asp | Val | Ile | Ser |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Val | Thr | Trp | Gln | Thr | Lys | Ser | Gly | Gly | Thr | Arg | Thr | Gly | Asn | Val | Thr |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Leu | Ala | Glu | Gly | Pro | Pro | Ala | Glu | Phe | Cys | Arg | Tyr | Pro | Ser | His | Trp |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Arg | Pro | Leu | Met | Ile | Lys | Arg | Thr | Ser | Leu | Ser | Phe | Ala | Cys | Leu | Ser |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Phe | Phe | Tyr | Leu | Ser | Thr | Ile | Ser | Ile | Leu | Gln | Ala | Asn | Glu | Thr | Asp |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Thr | Leu | Gln | Phe | Arg | Arg | Phe | Thr | Phe | Ser | Asp | Arg | Glu | Ile | Gln | Phe |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Val | Leu | Asp | Pro | Ala | Ser | Leu | Ile | Thr | Ala | Gln | Asn | Ile | Val | Leu | Ser |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Asn | Leu | Gln | Ser | Asn | Gly | Thr | Gly | Ala | Cys | Thr | Ile | Ser | Gly | Asn | Thr |
| | 210 | | | | | 215 | | | | | | 220 | | | |
| Gln | Thr | Gln | Ile | Phe | Ser | Asn | Ser | Val | Asn | Thr | Thr | Ala | Asp | Ser | Gly |
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| Gly | Ala | Phe | Asp | Met | Val | Thr | Thr | Ser | Phe | Thr | Ala | Ser | Asp | Asn | Ala |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Asn | Leu | Leu | Phe | Cys | Asn | Asn | Tyr | Cys | Thr | His | Asn | Lys | Gly | Gly | Gly |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Ala | Ile | Arg | Ser | Gly | Gly | Pro | Ile | Arg | Phe | Leu | Asn | Asn | Gln | Asp | Val |
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| Leu | Phe | Tyr | Asn | Asn | Ile | Ser | Ala | Gly | Ala | Lys | Tyr | Val | Gly | Thr | Gly |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Asp | His | Asn | Glu | Lys | Asn | Arg | Gly | Gly | Ala | Leu | Tyr | Ala | Thr | Thr | Ile |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Thr | Leu | Thr | Gly | Asn | Arg | Thr | Leu | Ala | Phe | Ile | Asn | Asn | Met | Ser | Gly |
| | | | | 325 | | | | | 330 | | | | | 335 | |
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| | | | 340 | | | | | 345 | | | | | 350 | | |
| Thr | Val | Lys | Gly | Ile | Leu | Phe | Glu | Asn | Asn | His | Thr | Leu | Asn | His | Ile |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Pro | Tyr | Thr | Gln | Ala | Glu | Asn | Met | Ala | Arg | Gly | Gly | Ala | Ile | Cys | Ser |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Arg | Arg | Asp | Leu | Cys | Ser | Ile | Ser | Asn | Asn | Ser | Gly | Pro | Ile | Val | Phe |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Asn | Tyr | Asn | Gln | Gly | Gly | Lys | Gly | Gly | Ala | Ile | Ser | Ala | Thr | Arg | Cys |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Val | Ile | Asp | Asn | Asn | Lys | Glu | Arg | Ile | Ile | Phe | Ser | Asn | Asn | Ser | Ser |

F06841.32.043301

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 450 455 460
 Asp Ser Asn Thr Ala Thr His Ala Gly Gly Ala Ile Asn Cys Gly Tyr
 465 470 475 480
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 485 490 495
 Ala Trp Gly Ala Ala Phe Asn Leu Ser Lys Pro Arg Ser Ala Thr Asn
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T02240" 212301

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Phe Leu Gly Leu Gly Val Val Asp Asn Asn Gly Asn Gly Ala Arg Val
50 55 60
Gln Arg Val Val Gly Ser Ala Pro Ala Ala Ser Leu Gly Ile Ser Thr
65 70 75 80
Gly Asp Val Ile Thr Ala Val Asp Gly Ala Pro Ile Asn Ser Ala Thr
85 90 95
Ala Met Ala Asp Ala Leu Asn Gly His His Pro Gly Asp Val Ile Ser
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Val Thr Trp Gln Thr Lys Ser Gly Gly Thr Arg Thr Gly Asn Val Thr
115 120 125
Leu Ala Glu Gly Pro Pro Ala Glu Phe Cys Arg Tyr Pro Ser His Trp
130 135 140
Arg Pro Leu Asp Ile Arg Thr Leu Met Gly Lys Glu His Asn Tyr Ile

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
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| Asp | Ala | Glu | Leu | Glu | Ile | Phe | Asn | Ile | Pro | Phe | Thr | Gln | Asn | Pro | Thr | |
| | | | 180 | | | | | 185 | | | | | 190 | | | |
| Ser | Leu | Leu | Ala | Leu | Gly | Ser | Gly | Ala | Thr | Leu | Thr | Val | Gly | Lys | His | |
| | | 195 | | | | | 200 | | | | | 205 | | | | |
| Gly | Lys | Leu | Asn | Ile | Thr | Asn | Leu | Gly | Val | Ile | Leu | Pro | Ile | Ile | Leu | |
| | 210 | | | | | 215 | | | | | 220 | | | | | |
| Lys | Glu | Gly | Lys | Ser | Pro | Pro | Cys | Ile | Arg | Val | Asn | Pro | Gln | Asp | Met | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | |
| Thr | Gln | Asn | Thr | Gly | Thr | Gly | Gln | Thr | Pro | Ser | Ser | Thr | Ser | Ser | Ile | |
| | | | | 245 | | | | | 250 | | | | | 255 | | |
| Ser | Thr | Pro | Met | Ile | Ile | Phe | Asn | Gly | Arg | Leu | Ser | Ile | Val | Asp | Glu | |
| | | | 260 | | | | | 265 | | | | | 270 | | | |
| Asn | Tyr | Glu | Ser | Val | Tyr | Asp | Ser | Met | Asp | Leu | Ser | Arg | Gly | Lys | Ala | |
| | | 275 | | | | | 280 | | | | | 285 | | | | |
| Glu | Gln | Leu | Ile | Leu | Ser | Ile | Glu | Thr | Thr | Asn | Asp | Gly | Gln | Leu | Asp | |
| | 290 | | | | | 295 | | | | | 300 | | | | | |
| Ser | Asn | Trp | Gln | Ser | Ser | Leu | Asn | Thr | Ser | Leu | Leu | Ser | Pro | Pro | His | |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 | |
| Tyr | Gly | Tyr | Gln | Gly | Leu | Trp | Thr | Pro | Asn | Trp | Ile | Thr | Thr | Thr | Tyr | |
| | | | | 325 | | | | | 330 | | | | | 335 | | |
| Thr | Ile | Thr | Leu | Asn | Asn | Asn | Ser | Ser | Ala | Pro | Thr | Ser | Ala | Thr | Ser | |
| | | | 340 | | | | | 345 | | | | | 350 | | | |
| Ile | Ala | Glu | Gln | Lys | Lys | Thr | Ser | Glu | Thr | Phe | Thr | Pro | Ser | Asn | Thr | |
| | | 355 | | | | | 360 | | | | | 365 | | | | |
| Thr | Thr | Ala | Ser | Ile | Pro | Asn | Ile | Lys | Ala | Ser | Ala | Gly | Ser | Gly | Ser | |
| | 370 | | | | | 375 | | | | | 380 | | | | | |
| Gly | Ser | Ala | Ser | Asn | Ser | Gly | Glu | Val | Thr | Ile | Thr | Lys | His | Thr | Leu | |
| 385 | | | | 390 | | | | | | 395 | | | | | 400 | |
| Val | Val | Asn | Trp | Ala | Pro | Val | Gly | Tyr | Ile | Val | Asp | Pro | Ile | Arg | Arg | |
| | | | | 405 | | | | | 410 | | | | | 415 | | |
| Gly | Asp | Leu | Ile | Ala | Asn | Ser | Leu | Val | His | Ser | Gly | Arg | Asn | Met | Thr | |
| | | | 420 | | | | | 425 | | | | | 430 | | | |
| Met | Gly | Leu | Arg | Ser | Leu | Leu | Pro | Asp | Asn | Ser | Trp | Phe | Ala | Leu | Gln | |
| | | 435 | | | | | 440 | | | | | 445 | | | | |
| Gly | Ala | Ala | Thr | Thr | Leu | Phe | Thr | Lys | Gln | Gln | Lys | Arg | Leu | Ser | Tyr | |
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| His | Gly | Tyr | Ser | Ser | Ala | Ser | Lys | Gly | Tyr | Thr | Val | Ser | Ser | Gln | Ala | |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 | |
| Ser | Gly | Ala | His | Gly | His | Lys | Phe | Leu | Leu | Ser | Phe | Ser | Gln | Ser | Ser | |
| | | | | 485 | | | | | 490 | | | | | 495 | | |
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Glu Gln Ala His Thr Ala Val Val Ser Pro Ile Gly Ile Lys Gly Ala
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 Tyr Ser Ser Asp Thr Trp Pro Thr Leu Ser Trp Glu Met Glu Leu Ala
 625 630 635 640
 Tyr Gln Pro Thr Leu Tyr Trp Lys Arg Pro Leu Leu Asn Thr Leu Leu
 645 650 655
 Ile Gln Asn Asn Gly Ser Trp Val Thr Thr Asn Thr Pro Leu Ala Lys
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 His Ser Phe Tyr Gly Arg Gly Ser His Ser Leu Lys Phe Ser His Leu
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<212> PRT

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<400> 325

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Ile Ala Gly Gln Ile Lys Leu Pro Thr Val His Ile Gly Pro Thr Ala
 35          40          45
Phe Leu Gly Leu Gly Val Val Asp Asn Asn Gly Asn Gly Ala Arg Val
 50          55          60
Gln Arg Val Val Gly Ser Ala Pro Ala Ala Ser Leu Gly Ile Ser Thr
 65          70          75          80
Gly Asp Val Ile Thr Ala Val Asp Gly Ala Pro Ile Asn Ser Ala Thr
 85          90          95
Ala Met Ala Asp Ala Leu Asn Gly His Pro Gly Asp Val Ile Ser
 100         105         110
Val Thr Trp Gln Thr Lys Ser Gly Gly Thr Arg Thr Gly Asn Val Thr
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Leu Ala Glu Gly Pro Pro Ala Glu Phe Cys Arg Tyr Pro Ser His Trp
 130         135         140
Arg Pro Leu Met Pro Phe Ser Leu Arg Ser Thr Ser Phe Cys Phe Leu
 145         150         155         160
Ala Cys Leu Cys Ser Tyr Ser Tyr Gly Phe Ala Ser Ser Pro Gln Val
 165         170         175
Leu Thr Pro Asn Val Thr Thr Pro Phe Lys Gly Asp Asp Val Tyr Leu
 180         185         190
Asn Gly Asp Cys Ala Phe Val Asn Val Tyr Ala Gly Ala Glu Asn Gly
 195         200         205
Ser Ile Ile Ser Ala Asn Gly Asp Asn Leu Thr Ile Thr Gly Gln Asn
 210         215         220
His Thr Leu Ser Phe Thr Asp Ser Gln Gly Pro Val Leu Gln Asn Tyr
 225         230         235         240
Ala Phe Ile Ser Ala Gly Glu Thr Leu Thr Leu Lys Asp Phe Ser Ser
 245         250         255
Leu Met Phe Ser Lys Asn Val Ser Cys Gly Glu Lys Gly Met Ile Ser
 260         265         270
Gly Lys Thr Val Ser Ile Ser Gly Ala Gly Glu Val Ile Phe Trp Asp
 275         280         285
Asn Ser Val Gly Tyr Ser Pro Leu Ser Ile Val Pro Ala Ser Thr Pro
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<211> 2148

<212> DNA

<213> Chlamydia trachomatis

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| cagggattcg | ccattccgat | cgggcaggcg | atggcgatcg | cgggccagat | caagcttccc | 120 |
| accgttcata | tcgggcctac | cgccttcctc | ggcttgggtg | ttgtcgacaa | caacggcaac | 180 |
| ggcgacagag | tccaacgcgt | ggtcgggagc | gctccggcgg | caagtctcgg | catctccacc | 240 |
| ggcgacgtga | tcaccgcggt | cgacggcgct | ccgatcaact | cggccaccgc | gatggcggac | 300 |
| gcgcttaacg | ggcatcatcc | cggtgacgtc | atctcgggtga | cctggcacaac | caagtcgggc | 360 |
| ggcacgcgta | cagggaaacgt | gacattggcc | gagggacccc | cggccgaatt | ctgcagatat | 420 |
| ccatcacact | ggcgccgct | cgatcctgta | gtacaaaata | attcagcagc | gggtgcatcg | 480 |
| acaccatcac | catcttcttc | ttctatgcct | ggtgctgtca | cgattaatca | gtccggtaat | 540 |
| ggatctgtga | tttttaccgc | cgagtcattg | actccttcag | aaaaaacttca | agttcttaac | 600 |
| tctacttcta | acttcccagg | agctctgact | gtgtcaggag | gggagttggt | tgtgacggaa | 660 |
| ggagctacct | taactactgg | gaccattaca | gccacctctg | gacgagtgac | tttaggatcc | 720 |
| ggagcttcgt | tgtctgccgt | tgcagggtgct | gcaaataata | attatacttg | tacagtatct | 780 |
| aagttgggga | ttgatttaga | atccttttta | actcctaact | ataagacggc | catactgggt | 840 |
| gcggatggaa | cagttactgt | taacagcggc | tctactttag | acctagtgat | ggagaatgag | 900 |
| gcagaggtct | atgataatcc | gctttttgtg | ggatcgctga | caattccttt | tgttactcta | 960 |
| tcttctagta | gtgctagtaa | cggagttaca | aaaaattctg | tcactattaa | tgatgcagac | 1020 |
| gctgcgcact | atgggtatca | aggctcttgg | tctgcagatt | ggacgaaaacc | gcctctggct | 1080 |
| cctgatgcta | aggggatggt | acctccta | accaataaca | ctctgtatct | gacatggaga | 1140 |
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| aactctcttt | gggtagcggg | atctgcatta | agaaccttta | ctaattggttt | gaaagaacac | 1260 |
| tatgtttcta | gagatgttgg | atttgtagca | tctctgcatg | ctctcgggga | ttatatcttg | 1320 |
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| gcagcctccc | attatgaaaa | tgggtcaata | tttggagtgg | cttttggaca | actctatggt | 1440 |
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| ttcggaaaga | gttacgtaga | tattaaagga | acagaaaactg | ttatgtattg | ggagacggct | 1560 |
| tatggctatt | ctgtgcacag | aatgcatacg | cagtatttta | atgacaaaac | gcagaagttc | 1620 |
| gatcattcga | aatgtcattg | gcacaacaat | aactattatg | cgttttagg | tgccgagcat | 1680 |
| aatttcttag | agtactgcat | tcctactcgt | cagttagcta | gagattatga | gcttacaggg | 1740 |
| tttatgcgtt | ttgaaatggc | cggaggatgg | tccagttcta | cacgagaaaac | tggctcccta | 1800 |
| actagatatt | tcgctcgcg | gtcagggcat | aatatgtcgc | ttccaatagg | aattgtagct | 1860 |
| catgcagttt | ctcatgtgcg | aagatctcct | ccttctaaac | tgacactaaa | tatgggatat | 1920 |
| agaccagaca | tttggcgtgt | cactccacat | tgcaatatgg | aaattattgc | taacggagtg | 1980 |
| aagacaccta | tacaaggatc | cccgtggca | cgcatgcct | tcttcttaga | agtgcagat | 2040 |
| actttgtata | ttcatcat | tgggaagacc | tatatgaact | attcattaga | tgctcgctcg | 2100 |
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<212> PRT

<213> Chlamydia trachomatis

<400> 329

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| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ser | Gln | Gly | Gly | Gln | Gly | Phe | Ala | Ile | Pro | Ile | Gly | Gln | Ala | Met | Ala |
| | | 20 | | | | | 25 | | | | | | 30 | | |
| Ile | Ala | Gly | Gln | Ile | Lys | Leu | Pro | Thr | Val | His | Ile | Gly | Pro | Thr | Ala |
| | | 35 | | | | | 40 | | | | | 45 | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Leu | Gly | Leu | Gly | Val | Val | Asp | Asn | Asn | Gly | Asn | Gly | Ala | Arg | Val |
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| Gln | Arg | Val | Val | Gly | Ser | Ala | Pro | Ala | Ala | Ser | Leu | Gly | Ile | Ser | Thr |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Gly | Asp | Val | Ile | Thr | Ala | Val | Asp | Gly | Ala | Pro | Ile | Asn | Ser | Ala | Thr |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Ala | Met | Ala | Asp | Ala | Leu | Asn | Gly | His | His | Pro | Gly | Asp | Val | Ile | Ser |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Val | Thr | Trp | Gln | Thr | Lys | Ser | Gly | Gly | Thr | Arg | Thr | Gly | Asn | Val | Thr |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Leu | Ala | Glu | Gly | Pro | Pro | Ala | Glu | Phe | Cys | Arg | Tyr | Pro | Ser | His | Trp |
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| Arg | Pro | Leu | Asp | Pro | Val | Val | Gln | Asn | Asn | Ser | Ala | Ala | Gly | Ala | Ser |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Thr | Pro | Ser | Pro | Ser | Ser | Ser | Ser | Met | Pro | Gly | Ala | Val | Thr | Ile | Asn |
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| Gln | Ser | Gly | Asn | Gly | Ser | Val | Ile | Phe | Thr | Ala | Glu | Ser | Leu | Thr | Pro |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Ser | Glu | Lys | Leu | Gln | Val | Leu | Asn | Ser | Thr | Ser | Asn | Phe | Pro | Gly | Ala |
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| Leu | Thr | Val | Ser | Gly | Gly | Glu | Leu | Val | Val | Thr | Glu | Gly | Ala | Thr | Leu |
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| Thr | Thr | Gly | Thr | Ile | Thr | Ala | Thr | Ser | Gly | Arg | Val | Thr | Leu | Gly | Ser |
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| Gly | Ala | Ser | Leu | Ser | Ala | Val | Ala | Gly | Ala | Ala | Asn | Asn | Asn | Tyr | Thr |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Cys | Thr | Val | Ser | Lys | Leu | Gly | Ile | Asp | Leu | Glu | Ser | Phe | Leu | Thr | Pro |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Asn | Tyr | Lys | Thr | Ala | Ile | Leu | Gly | Ala | Asp | Gly | Thr | Val | Thr | Val | Asn |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Ser | Gly | Ser | Thr | Leu | Asp | Leu | Val | Met | Glu | Asn | Glu | Ala | Glu | Val | Tyr |
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| Asp | Asn | Pro | Leu | Phe | Val | Gly | Ser | Leu | Thr | Ile | Pro | Phe | Val | Thr | Leu |
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| Ser | Ser | Ser | Ser | Ala | Ser | Asn | Gly | Val | Thr | Lys | Asn | Ser | Val | Thr | Ile |
| | | | | 325 | | | | | | 330 | | | | 335 | |
| Asn | Asp | Ala | Asp | Ala | Ala | His | Tyr | Gly | Tyr | Gln | Gly | Ser | Trp | Ser | Ala |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Asp | Trp | Thr | Lys | Pro | Pro | Leu | Ala | Pro | Asp | Ala | Lys | Gly | Met | Val | Pro |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Pro | Asn | Thr | Asn | Asn | Thr | Leu | Tyr | Leu | Thr | Trp | Arg | Pro | Ala | Ser | Asn |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Tyr | Gly | Glu | Tyr | Arg | Leu | Asp | Pro | Gln | Arg | Lys | Gly | Glu | Leu | Val | Pro |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Asn | Ser | Leu | Trp | Val | Ala | Gly | Ser | Ala | Leu | Arg | Thr | Phe | Thr | Asn | Gly |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Leu | Lys | Glu | His | Tyr | Val | Ser | Arg | Asp | Val | Gly | Phe | Val | Ala | Ser | Leu |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| His | Ala | Leu | Gly | Asp | Tyr | Ile | Leu | Asn | Tyr | Thr | Gln | Asp | Asp | Arg | Asp |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Gly | Phe | Leu | Ala | Arg | Tyr | Gly | Gly | Phe | Gln | Ala | Thr | Ala | Ala | Ser | His |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Tyr | Glu | Asn | Gly | Ser | Ile | Phe | Gly | Val | Ala | Phe | Gly | Gln | Leu | Tyr | Gly |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Gln | Thr | Lys | Ser | Arg | Met | Tyr | Tyr | Ser | Lys | Asp | Ala | Gly | Asn | Met | Thr |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Met | Leu | Ser | Cys | Phe | Gly | Arg | Ser | Tyr | Val | Asp | Ile | Lys | Gly | Thr | Glu |

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 565 570 575
 Glu Leu Thr Gly Phe Met Arg Phe Glu Met Ala Gly Gly Trp Ser Ser
 580 585 590
 Ser Thr Arg Glu Thr Gly Ser Leu Thr Arg Tyr Phe Ala Arg Gly Ser
 595 600 605
 Gly His Asn Met Ser Leu Pro Ile Gly Ile Val Ala His Ala Val Ser
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 Ala Asn Gly Val Lys Thr Pro Ile Gln Gly Ser Pro Leu Ala Arg His
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 Ala Phe Phe Leu Glu Val His Asp Thr Leu Tyr Ile His His Phe Gly
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| <400> | 333 | | | | | | | | | | | | | | |
| Met | His | His | His | His | His | His | Thr | Ala | Ala | Ser | Asp | Asn | Phe | Gln | Leu |
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| Ser | Gln | Gly | Gly | Gln | Gly | Phe | Ala | Ile | Pro | Ile | Gly | Gln | Ala | Met | Ala |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Ile | Ala | Gly | Gln | Ile | Lys | Leu | Pro | Thr | Val | His | Ile | Gly | Pro | Thr | Ala |
| | | | 35 | | | | 40 | | | | | 45 | | | |
| Phe | Leu | Gly | Leu | Gly | Val | Val | Asp | Asn | Asn | Gly | Asn | Gly | Ala | Arg | Val |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Gln | Arg | Val | Val | Gly | Ser | Ala | Pro | Ala | Ala | Ser | Leu | Gly | Ile | Ser | Thr |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Gly | Asp | Val | Ile | Thr | Ala | Val | Asp | Gly | Ala | Pro | Ile | Asn | Ser | Ala | Thr |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Ala | Met | Ala | Asp | Ala | Leu | Asn | Gly | His | His | Pro | Gly | Asp | Val | Ile | Ser |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Val | Thr | Trp | Gln | Thr | Lys | Ser | Gly | Gly | Thr | Arg | Thr | Gly | Asn | Val | Thr |
| | | | 115 | | | | 120 | | | | | 125 | | | |
| Leu | Ala | Glu | Gly | Pro | Pro | Ala | Glu | Phe | Cys | Arg | Tyr | Pro | Ser | His | Trp |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Arg | Pro | Leu | Met | Lys | Trp | Leu | Ser | Ala | Thr | Ala | Val | Phe | Ala | Ala | Val |
| 145 | | | | 150 | | | | | | 155 | | | | 160 | |
| Leu | Pro | Ser | Val | Ser | Gly | Phe | Cys | Phe | Pro | Glu | Pro | Lys | Glu | Leu | Asn |
| | | | | 165 | | | | | | 170 | | | | 175 | |
| Phe | Ser | Arg | Val | Glu | Thr | Ser | Ser | Ser | Thr | Thr | Phe | Thr | Glu | Thr | Ile |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Gly | Glu | Ala | Gly | Ala | Glu | Tyr | Ile | Val | Ser | Gly | Asn | Ala | Ser | Phe | Thr |
| | | | 195 | | | | 200 | | | | | 205 | | | |
| Lys | Phe | Thr | Asn | Ile | Pro | Thr | Thr | Asp | Thr | Thr | Thr | Pro | Thr | Asn | Ser |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Asn | Ser | Ser | Ser | Ser | Ser | Gly | Glu | Thr | Ala | Ser | Val | Ser | Glu | Asp | Ser |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Asp | Ser | Thr | Thr | Thr | Thr | Pro | Asp | Pro | Lys | Gly | Gly | Gly | Ala | Phe | Tyr |

Asn Ala His Ser Gly Val Leu Ser Phe Met Thr Arg Ser Gly Thr Glu
 245 250 255
 260 265 270
 Gly Ser Leu Thr Leu Ser Glu Ile Lys Met Thr Gly Glu Gly Gly Ala
 275 280 285
 Ile Phe Ser Gln Gly Glu Leu Leu Phe Thr Asp Leu Thr Ser Leu Thr
 290 295 300
 Ile Gln Asn Asn Leu Ser Gln Leu Ser Gly Gly Ala Ile Phe Gly Gly
 305 310 315 320
 Ser Thr Ile Ser Leu Ser Gly Ile Thr Lys Ala Thr Phe Ser Cys Asn
 325 330 335
 Ser Ala Glu Val Pro Ala Pro Val Lys Lys Pro Thr Glu Pro Lys Ala
 340 345 350
 Gln Thr Ala Ser Glu Thr Ser Gly Ser Ser Ser Ser Ser Gly Asn Asp
 355 360 365
 Ser Val Ser Ser Pro Ser Ser Ser Arg Ala Glu Pro Ala Ala Ala Asn
 370 375 380
 Leu Gln Ser His Phe Ile Cys Ala Thr Ala Thr Pro Ala Ala Gln Thr
 385 390 395 400
 Asp Thr Glu Thr Ser Thr Pro Ser His Lys Pro Gly Ser Gly Gly Ala
 405 410 415
 Ile Tyr Ala Lys Gly Asp Leu Thr Ile Ala Asp Ser Gln Glu Val Leu
 420 425 430
 Phe Ser Ile Asn Lys Ala Thr Lys Asp Gly Gly Ala Ile Phe Ala Glu
 435 440 445
 Lys Asp Val Ser Phe Glu Asn Ile Thr Ser Leu Lys Val Gln Thr Asn
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 Gly Ala Glu Glu Lys Gly Gly Ala Ile Tyr Ala Lys Gly Asp Leu Ser
 465 470 475 480
 Ile Gln Ser Ser Lys Gln Ser Leu Phe Asn Ser Asn Tyr Ser Lys Gln
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 Glu Glu Ile Arg Ile Lys
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37

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39

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 accgttcata tcgggcctac cgccttcctc ggcttgggtg ttgtcgacaa caacggcaac 180
 ggcgacagag tccaacgcgt ggtcgggagc gctccggcgg caagtctcgg catctccacc 240
 ggcgacgtga tcaccgcggt cgacggcgct ccgatcaact cggccaccgc gatggcggac 300
 gcgcttaacg ggcatcatcc cggtgacgtc atctcgggtg cctggcaaac caagtcgggc 360
 ggacgcgta cagggaaact gacattggcc gagggacccc cggccgaatt ctgcagatat 420
 ccatcacact ggcgccgct cggtgacgtc tcaattcaat cttctaaaca gagtcttttt 480
 aattctaact acagtaaaca aggtgggggg gctctatatg ttgaaggagg tataaacttc 540
 caagatcttg aagaaattcg cattaagtac aataaagctg gaacgttcga aacaaaaaaa 600
 atcactttac cttctttaa agctcaagca tctgcaggaa atgcagatgc ttgggcctct 660
 tcctctcctc aatctggttc tggagcaact acagtctccg actcaggaga ctctagctct 720
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 cgtctacaat ttttgaaaaa ctcttccgat aaacaagggtg gaggaatcta cggagaagac 960
 aacatcaccc tatctaattt gacagggaag actctatttc aagagaatac tgccaaagaa 1020
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 agtttctgtt taattaataa cacatcagaa aaacatggtg gtggagcctt tgttaccaa 1140
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 gattatgtag ttgatacgac tatcagcaaa aacactgcta agaaaggcgg tggaatctat 1620
 gctaaaaaag ccaagatgtc ccgcatagac caactgaata tctctgagaa ctccgctaca 1680
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 <212> PRT
 <213> Chlamydia trachomatis

<400> 337
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 35 40 45
 Phe Leu Gly Leu Gly Val Val Asp Asn Asn Gly Asn Gly Ala Arg Val
 50 55 60
 Gln Arg Val Val Gly Ser Ala Pro Ala Ala Ser Leu Gly Ile Ser Thr
 65 70 75 80
 Gly Asp Val Ile Thr Ala Val Asp Gly Ala Pro Ile Asn Ser Ala Thr
 85 90 95
 Ala Met Ala Asp Ala Leu Asn Gly His His Pro Gly Asp Val Ile Ser
 100 105 110
 Val Thr Trp Gln Thr Lys Ser Gly Gly Thr Arg Thr Gly Asn Val Thr
 115 120 125
 Leu Ala Glu Gly Pro Pro Ala Glu Phe Cys Arg Tyr Pro Ser His Trp
 130 135 140
 Arg Pro Leu Gly Asp Leu Ser Ile Gln Ser Ser Lys Gln Ser Leu Phe

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 145 | | | | | 150 | | | | | 155 | | | | 160 |
| Asn | Ser | Asn | Tyr | Ser | Lys | Gln | Gly | Gly | Gly | Ala | Leu | Tyr | Val | Glu |
| | | | | 165 | | | | | 170 | | | | | 175 |
| Gly | Ile | Asn | Phe | Gln | Asp | Leu | Glu | Glu | Ile | Arg | Ile | Lys | Tyr | Asn |
| | | | 180 | | | | | | 185 | | | | 190 | |
| Ala | Gly | Thr | Phe | Glu | Thr | Lys | Lys | Ile | Thr | Leu | Pro | Ser | Leu | Lys |
| | | 195 | | | | | 200 | | | | | 205 | | Ala |
| Gln | Ala | Ser | Ala | Gly | Asn | Ala | Asp | Ala | Trp | Ala | Ser | Ser | Ser | Pro |
| | 210 | | | | | 215 | | | | | 220 | | | Gln |
| Ser | Gly | Ser | Gly | Ala | Thr | Thr | Val | Ser | Asp | Ser | Gly | Asp | Ser | Ser |
| 225 | | | | | 230 | | | | 235 | | | | | 240 |
| Gly | Ser | Asp | Ser | Asp | Thr | Ser | Glu | Thr | Val | Pro | Val | Thr | Ala | Lys |
| | | | | 245 | | | | | 250 | | | | | 255 |
| Gly | Gly | Leu | Tyr | Thr | Asp | Lys | Asn | Leu | Ser | Ile | Thr | Asn | Ile | Thr |
| | | | 260 | | | | | 265 | | | | | 270 | Gly |
| Ile | Ile | Glu | Ile | Ala | Asn | Asn | Lys | Ala | Thr | Asp | Val | Gly | Gly | Gly |
| | | 275 | | | | | 280 | | | | | 285 | | Ala |
| Tyr | Val | Lys | Gly | Thr | Leu | Thr | Cys | Glu | Asn | Ser | His | Arg | Leu | Gln |
| | 290 | | | | | 295 | | | | | 300 | | | Phe |
| Leu | Lys | Asn | Ser | Ser | Asp | Lys | Gln | Gly | Gly | Gly | Ile | Tyr | Gly | Glu |
| 305 | | | | | 310 | | | | | 315 | | | | 320 |
| Asn | Ile | Thr | Leu | Ser | Asn | Leu | Thr | Gly | Lys | Thr | Leu | Phe | Gln | Glu |
| | | | | 325 | | | | | 330 | | | | | 335 |
| Thr | Ala | Lys | Glu | Gly | Gly | Gly | Gly | Leu | Phe | Ile | Lys | Gly | Thr | Asp |
| | | | 340 | | | | | 345 | | | | | 350 | Lys |
| Ala | Leu | Thr | Met | Thr | Gly | Leu | Asp | Ser | Phe | Cys | Leu | Ile | Asn | Asn |
| | | 355 | | | | | 360 | | | | | 365 | | Thr |
| Ser | Glu | Lys | His | Gly | Gly | Gly | Ala | Phe | Val | Thr | Lys | Glu | Ile | Ser |
| | 370 | | | | | 375 | | | | | 380 | | | Gln |
| Thr | Tyr | Thr | Ser | Asp | Val | Glu | Thr | Ile | Pro | Gly | Ile | Thr | Pro | Val |
| 385 | | | | | 390 | | | | | 395 | | | | 400 |
| Gly | Glu | Thr | Val | Ile | Thr | Gly | Asn | Lys | Ser | Thr | Gly | Gly | Asn | Gly |
| | | | | 405 | | | | | 410 | | | | | 415 |
| Gly | Val | Cys | Thr | Lys | Arg | Leu | Ala | Leu | Ser | Asn | Leu | Gln | Ser | Ile |
| | | | 420 | | | | | 425 | | | | | 430 | Ser |
| Ile | Ser | Gly | Asn | Ser | Ala | Ala | Glu | Asn | Gly | Gly | Gly | Ala | His | Thr |
| | | 435 | | | | | 440 | | | | | 445 | | Cys |
| Pro | Asp | Ser | Phe | Pro | Thr | Ala | Asp | Thr | Ala | Glu | Gln | Pro | Ala | Ala |
| | 450 | | | | | 455 | | | | 460 | | | | Ala |
| Ser | Ala | Ala | Thr | Ser | Thr | Pro | Lys | Ser | Ala | Pro | Val | Ser | Thr | Ala |
| 465 | | | | | 470 | | | | | 475 | | | | 480 |
| Ser | Thr | Pro | Ser | Ser | Ser | Thr | Val | Ser | Ser | Leu | Thr | Leu | Leu | Ala |
| | | | | 485 | | | | | 490 | | | | | 495 |
| Ser | Ser | Gln | Ala | Ser | Pro | Ala | Thr | Ser | Asn | Lys | Glu | Thr | Gln | Asp |
| | | | 500 | | | | | 505 | | | | | 510 | Pro |
| Asn | Ala | Asp | Thr | Asp | Leu | Leu | Ile | Asp | Tyr | Val | Val | Asp | Thr | Thr |
| | | 515 | | | | | 520 | | | | | 525 | | Ile |
| Ser | Lys | Asn | Thr | Ala | Lys | Lys | Gly | Gly | Gly | Ile | Tyr | Ala | Lys | Lys |
| | 530 | | | | | 535 | | | | | 540 | | | Ala |
| Lys | Met | Ser | Arg | Ile | Asp | Gln | Leu | Asn | Ile | Ser | Glu | Asn | Ser | Ala |
| 545 | | | | | 550 | | | | | 555 | | | | 560 |
| Glu | Ile | Gly | Gly | Gly | Ile | Cys | Cys | Lys | Glu | Ser | Leu | Glu | Leu | Asp |
| | | | | 565 | | | | | 570 | | | | | 575 |
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<210> 339
 <211> 35
 <212> DNA
 <213> Chlamydia trachomatis

<400> 339
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<210> 340
 <211> 1965
 <212> DNA
 <213> Chlamydia trachomatis

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 ggtggaggta tctgctgtaa agaactctta gaactagatg ctctagtctc cttatctgta 540
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 gaaactttag atattaataa agaagagAAC agtaatccat atacaggaac tattgtgttc 1860
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<210> 341
 <211> 654

<212> PRT

<213> Chlamydia trachomatis

<400> 341

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| Met | His | His | His | His | His | His | Thr | Ala | Ala | Ser | Asp | Asn | Phe | Gln | Leu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ser | Gln | Gly | Gly | Gln | Gly | Phe | Ala | Ile | Pro | Ile | Gly | Gln | Ala | Met | Ala |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Ile | Ala | Gly | Gln | Ile | Lys | Leu | Pro | Thr | Val | His | Ile | Gly | Pro | Thr | Ala |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Phe | Leu | Gly | Leu | Gly | Val | Val | Asp | Asn | Asn | Gly | Asn | Gly | Ala | Arg | Val |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Gln | Arg | Val | Val | Gly | Ser | Ala | Pro | Ala | Ala | Ser | Leu | Gly | Ile | Ser | Thr |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Gly | Asp | Val | Ile | Thr | Ala | Val | Asp | Gly | Ala | Pro | Ile | Asn | Ser | Ala | Thr |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Ala | Met | Ala | Asp | Ala | Leu | Asn | Gly | His | His | Pro | Gly | Asp | Val | Ile | Ser |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Val | Thr | Trp | Gln | Thr | Lys | Ser | Gly | Gly | Thr | Arg | Thr | Gly | Asn | Val | Thr |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Leu | Ala | Glu | Gly | Pro | Pro | Ala | Glu | Phe | Cys | Arg | Tyr | Pro | Ser | His | Trp |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Arg | Pro | Leu | Asp | Gln | Leu | Asn | Ile | Ser | Glu | Asn | Ser | Ala | Thr | Glu | Ile |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Gly | Gly | Gly | Ile | Cys | Cys | Lys | Glu | Ser | Leu | Glu | Leu | Asp | Ala | Leu | Val |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Ser | Leu | Ser | Val | Thr | Glu | Asn | Leu | Val | Gly | Lys | Glu | Gly | Gly | Gly | Leu |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| His | Ala | Lys | Thr | Val | Asn | Ile | Ser | Asn | Leu | Lys | Ser | Gly | Phe | Ser | Phe |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Ser | Asn | Asn | Lys | Ala | Asn | Ser | Ser | Ser | Thr | Gly | Val | Ala | Thr | Thr | Ala |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Ser | Ala | Pro | Ala | Ala | Ala | Ala | Ala | Ser | Leu | Gln | Ala | Ala | Ala | Ala | Ala |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Ala | Pro | Ser | Ser | Pro | Ala | Thr | Pro | Thr | Tyr | Ser | Gly | Val | Val | Gly | Gly |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Ala | Ile | Tyr | Gly | Glu | Lys | Val | Thr | Phe | Ser | Gln | Cys | Ser | Gly | Thr | Cys |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Gln | Phe | Ser | Gly | Asn | Gln | Ala | Ile | Asp | Asn | Asn | Pro | Ser | Gln | Ser | Ser |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Leu | Asn | Val | Gln | Gly | Gly | Ala | Ile | Tyr | Ala | Lys | Thr | Ser | Leu | Ser | Ile |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Gly | Ser | Ser | Asp | Ala | Gly | Thr | Ser | Tyr | Ile | Phe | Ser | Gly | Asn | Ser | Val |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Ser | Thr | Gly | Lys | Ser | Gln | Thr | Thr | Gly | Gln | Ile | Ala | Gly | Gly | Ala | Ile |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Tyr | Ser | Pro | Thr | Val | Thr | Leu | Asn | Cys | Pro | Ala | Thr | Phe | Ser | Asn | Asn |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Thr | Ala | Ser | Ile | Ala | Thr | Pro | Lys | Thr | Ser | Ser | Glu | Asp | Gly | Ser | Ser |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Gly | Asn | Ser | Ile | Lys | Asp | Thr | Ile | Gly | Gly | Ala | Ile | Ala | Gly | Thr | Ala |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Ile | Thr | Leu | Ser | Gly | Val | Ser | Arg | Phe | Ser | Gly | Asn | Thr | Ala | Asp | Leu |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Gly | Ala | Ala | Ile | Gly | Thr | Leu | Ala | Asn | Ala | Asn | Thr | Pro | Ser | Ala | Thr |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Ser | Gly | Ser | Gln | Asn | Ser | Ile | Thr | Glu | Lys | Ile | Thr | Leu | Glu | Asn | Gly |

FOE2HO" 22ET4860

420 425 430
 Ser Phe Ile Phe Glu Arg Asn Gln Ala Asn Lys Arg Gly Ala Ile Tyr
 435 440 445
 Ser Pro Ser Val Ser Ile Lys Gly Asn Asn Ile Thr Phe Asn Gln Asn
 450 455 460
 Thr Ser Thr His Asp Gly Ser Ala Ile Tyr Phe Thr Lys Asp Ala Thr
 465 470 475 480
 Ile Glu Ser Leu Gly Ser Val Leu Phe Thr Gly Asn Asn Val Thr Ala
 485 490 495
 Thr Gln Ala Ser Ser Ala Thr Ser Gly Gln Asn Thr Asn Thr Ala Asn
 500 505 510
 Tyr Gly Ala Ala Ile Phe Gly Asp Pro Gly Thr Thr Gln Ser Ser Gln
 515 520 525
 Thr Asp Ala Ile Leu Thr Leu Leu Ala Ser Ser Gly Asn Ile Thr Phe
 530 535 540
 Ser Asn Asn Ser Leu Gln Asn Asn Gln Gly Asp Thr Pro Ala Ser Lys
 545 550 555 560
 Phe Cys Ser Ile Ala Gly Tyr Val Lys Leu Ser Leu Gln Ala Ala Lys
 565 570 575
 Gly Lys Thr Ile Ser Phe Phe Asp Cys Val His Thr Ser Thr Lys Lys
 580 585 590
 Thr Gly Ser Thr Gln Asn Val Tyr Glu Thr Leu Asp Ile Asn Lys Glu
 595 600 605
 Glu Asn Ser Asn Pro Tyr Thr Gly Thr Ile Val Phe Ser Ser Glu Leu
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36

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<400> 343
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35

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 <211> 2103
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 <213> Chlamydia trachomatis

<400> 344
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 accgttcata tcgggcctac cgccttcctc ggcttgggtg ttgtcgacaa caacggcaac 180
 ggcgcacgag tccaacgcgt ggtcgggagc gctccggcgg caagtctcgg catctccacc 240
 ggcgacgtga tcaccgcggt cgacggcgct ccgatcaact cggccaccgc gatggcggac 300

gcgcttaacg ggcacatcc cgggtgacgtc atctcgggtga cctggcacaac caagtcgggc 360
ggcacgcgta cagggaacgt gacattggcc gagggacccc cggccgaatt ctgcagatat 420
ccatcacact ggcggccgct cggaactatt gtgttctctt ctgaattaca tgaaaacaaa 480
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gaactccacg tagtctcttt tgagcagaaa gaaggggtcta aattaattat ggaaccgga 600
gctgtgttat ctaacaaaaa catagctaac ggagctctag ctatcaatgg gttaacgatt 660
gatctttcca gtatggggac tcctcaagca ggggaaatct tctctcctcc agaattacgt 720
atcgttgcca cgacctctag tgcattccga ggaagcgggg tcagcagtag tataccaaca 780
aatcctaataa ggatttctgc agcagtgcc tccaggttctg ccgcaactac tccaactatg 840
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ttgtcttcga atgaagctgg tcaagttatc tgcggagtcg caactagaac ctctgctaga 1980
gcagaataca gtactcaact atatcttggt cccttctgga ctctctacgg aaactatact 2040
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taa 2103

<210> 345
<211> 700
<212> PRT
<213> Chlamydia trachomatis

<400> 345
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20 25 30
Ile Ala Gly Gln Ile Lys Leu Pro Thr Val His Ile Gly Pro Thr Ala
35 40 45
Phe Leu Gly Leu Gly Val Val Asp Asn Asn Gly Asn Gly Ala Arg Val
50 55 60
Gln Arg Val Val Gly Ser Ala Pro Ala Ala Ser Leu Gly Ile Ser Thr
65 70 75 80
Gly Asp Val Ile Thr Ala Val Asp Gly Ala Pro Ile Asn Ser Ala Thr
85 90 95
Ala Met Ala Asp Ala Leu Asn Gly His His Pro Gly Asp Val Ile Ser
100 105 110
Val Thr Trp Gln Thr Lys Ser Gly Gly Thr Arg Thr Gly Asn Val Thr
115 120 125
Leu Ala Glu Gly Pro Pro Ala Glu Phe Cys Arg Tyr Pro Ser His Trp
130 135 140
Arg Pro Leu Gly Thr Ile Val Phe Ser Ser Glu Leu His Glu Asn Lys

| | | | | | | |
|---|-----|-----|-----|-----|-----|-----|
| 145 | | 150 | | 155 | | 160 |
| Ser Tyr Ile Pro Gln Asn Ala Ile Leu His Asn Gly Thr Leu Val Leu | | | | | | |
| | 165 | | 170 | | 175 | |
| Lys Glu Lys Thr Glu Leu His Val Val Ser Phe Glu Gln Lys Glu Gly | | | | | | |
| | 180 | | 185 | | 190 | |
| Ser Lys Leu Ile Met Glu Pro Gly Ala Val Leu Ser Asn Gln Asn Ile | | | | | | |
| | 195 | | 200 | | 205 | |
| Ala Asn Gly Ala Leu Ala Ile Asn Gly Leu Thr Ile Asp Leu Ser Ser | | | | | | |
| | 210 | | 215 | | 220 | |
| Met Gly Thr Pro Gln Ala Gly Glu Ile Phe Ser Pro Pro Glu Leu Arg | | | | | | |
| | 225 | | 230 | | 235 | |
| Ile Val Ala Thr Thr Ser Ser Ala Ser Gly Gly Ser Gly Val Ser Ser | | | | | | |
| | 245 | | 250 | | 255 | |
| Ser Ile Pro Thr Asn Pro Lys Arg Ile Ser Ala Ala Val Pro Ser Gly | | | | | | |
| | 260 | | 265 | | 270 | |
| Ser Ala Ala Thr Thr Pro Thr Met Ser Glu Asn Lys Val Phe Leu Thr | | | | | | |
| | 275 | | 280 | | 285 | |
| Gly Asp Leu Thr Leu Ile Asp Pro Asn Gly Asn Phe Tyr Gln Asn Pro | | | | | | |
| | 290 | | 295 | | 300 | |
| Met Leu Gly Ser Asp Leu Asp Val Pro Leu Ile Lys Leu Pro Thr Asn | | | | | | |
| | 305 | | 310 | | 315 | |
| Thr Ser Asp Val Gln Val Tyr Asp Leu Thr Leu Ser Gly Asp Leu Phe | | | | | | |
| | 325 | | 330 | | 335 | |
| Pro Gln Lys Gly Tyr Met Gly Thr Trp Thr Leu Asp Ser Asn Pro Gln | | | | | | |
| | 340 | | 345 | | 350 | |
| Thr Gly Lys Leu Gln Ala Arg Trp Thr Phe Asp Thr Tyr Arg Arg Trp | | | | | | |
| | 355 | | 360 | | 365 | |
| Val Tyr Ile Pro Arg Asp Asn His Phe Tyr Ala Asn Ser Ile Leu Gly | | | | | | |
| | 370 | | 375 | | 380 | |
| Ser Gln Asn Ser Met Ile Val Val Lys Gln Gly Leu Ile Asn Asn Met | | | | | | |
| | 385 | | 390 | | 395 | |
| Leu Asn Asn Ala Arg Phe Asp Asp Ile Ala Tyr Asn Asn Phe Trp Val | | | | | | |
| | 405 | | 410 | | 415 | |
| Ser Gly Val Gly Thr Phe Leu Ala Gln Gln Gly Thr Pro Leu Ser Glu | | | | | | |
| | 420 | | 425 | | 430 | |
| Glu Phe Ser Tyr Tyr Ser Arg Gly Thr Ser Val Ala Ile Asp Ala Lys | | | | | | |
| | 435 | | 440 | | 445 | |
| Pro Arg Gln Asp Phe Ile Leu Gly Ala Ala Phe Ser Lys Ile Val Gly | | | | | | |
| | 450 | | 455 | | 460 | |
| Lys Thr Lys Ala Ile Lys Lys Met His Asn Tyr Phe His Lys Gly Ser | | | | | | |
| | 465 | | 470 | | 475 | |
| Glu Tyr Ser Tyr Gln Ala Ser Val Tyr Gly Gly Lys Phe Leu Tyr Phe | | | | | | |
| | 485 | | 490 | | 495 | |
| Leu Leu Asn Lys Gln His Gly Trp Ala Leu Pro Phe Leu Ile Gln Gly | | | | | | |
| | 500 | | 505 | | 510 | |
| Val Val Ser Tyr Gly His Ile Lys His Asp Thr Thr Thr Leu Tyr Pro | | | | | | |
| | 515 | | 520 | | 525 | |
| Ser Ile His Glu Arg Asn Lys Gly Asp Trp Glu Asp Leu Gly Trp Leu | | | | | | |
| | 530 | | 535 | | 540 | |
| Ala Asp Leu Arg Ile Ser Met Asp Leu Lys Glu Pro Ser Lys Asp Ser | | | | | | |
| | 545 | | 550 | | 555 | |
| Ser Lys Arg Ile Thr Val Tyr Gly Glu Leu Glu Tyr Ser Ser Ile Arg | | | | | | |
| | 565 | | 570 | | 575 | |
| Gln Lys Gln Phe Thr Glu Ile Asp Tyr Asp Pro Arg His Phe Asp Asp | | | | | | |
| | 580 | | 585 | | 590 | |
| Cys Ala Tyr Arg Asn Leu Ser Leu Pro Val Gly Cys Ala Val Glu Gly | | | | | | |
| | 595 | | 600 | | 605 | |

0904132 040301

Ala Ile Met Asn Cys Asn Ile Leu Met Tyr Asn Lys Leu Ala Leu Ala
 610 615 620
 Tyr Met Pro Ser Ile Tyr Arg Asn Asn Pro Val Cys Lys Tyr Arg Val
 625 630 635 640
 Leu Ser Ser Asn Glu Ala Gly Gln Val Ile Cys Gly Val Pro Thr Arg
 645 650 655
 Thr Ser Ala Arg Ala Glu Tyr Ser Thr Gln Leu Tyr Leu Gly Pro Phe
 660 665 670
 Trp Thr Leu Tyr Gly Asn Tyr Thr Ile Asp Val Gly Met Tyr Thr Leu
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 690 695 700

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<211> 37

<212> DNA

<213> Chlamydia trachomatis

<400> 346

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37

<210> 347

<211> 37

<212> DNA

<213> Chlamydia trachomatis

<400> 347

gagagcggcc gcttaccctg taattccagt gatggtc

37

<210> 348

<211> 1464

<212> DNA

<213> Chlamydia trachomatis

<400> 348

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| cagggattcg | ccattccgat | cgggcaggcg | atggcgatcg | cgggccagat | caagcttccc | 120 |
| accgttcata | tcgggcctac | cgcccttcctc | ggcttgggtg | ttgtcgacaa | caacggcaac | 180 |
| ggcgacgag | tccaacgcgt | ggtcgggagc | gctccggcgg | caagtctcgg | catctccacc | 240 |
| ggcgacgtga | tcaccgcggt | cgacggcgct | ccgatcaact | cggccaccgc | gatggcggac | 300 |
| gcgcttaacg | ggcatcatcc | cggtgacgtc | atctcggtga | cctggcaaac | caagtcgggc | 360 |
| ggcacgcgta | cagggaacgt | gacattggcc | gagggacccc | cggccgaatt | ctgcagatat | 420 |
| ccatcacact | ggcggccgct | catgaaattt | atgtcagcta | ctgctgtatt | tgctgcagta | 480 |
| ctctcctccg | ttactgaggc | gagctcgatc | caagatcaaa | taaagaatac | cgactgcaat | 540 |
| gttagcaaaag | taggatattc | aacttctcaa | gcatttactg | atatgatgct | agcagacaac | 600 |
| acagagtatc | gagctgctga | tagtgtttca | ttctatgact | tttcgacatc | ttccggatta | 660 |
| cctagaaaac | atcttagtag | tagtagtgaa | gcttctccaa | cgacagaagg | agtgtcttca | 720 |
| tcttcatctg | gagaaaatac | tgagaattca | caagattcag | ctccctcttc | tggagaaact | 780 |
| gataagaaaa | cagaagaaga | actagacaat | ggcggaatca | tttatgctag | agagaaacta | 840 |
| actatctcag | aatctcagga | ctctctctct | aatccaagca | tagaactcca | tgacaatagt | 900 |
| tttttcttcg | gagaagggtga | agttatcttt | gatcacagag | ttgccctcaa | aaacggagga | 960 |
| gctattttatg | gagagaaaga | ggtagtcttt | gaaaacataa | aatctctact | agtagaagta | 1020 |
| aatatctcgg | tcgagaaagg | gggtagcgtc | tatgcaaaag | aacgagtatc | tttagaaaat | 1080 |
| gttaccgaag | caaccttctc | ctccaatggt | ggggaacaag | gtgggtggtg | aatctattca | 1140 |
| gaacaagata | tgtaaatcag | tgattgcaac | aatgtacatt | tccaagggaa | tgctgcagga | 1200 |
| gcaacagcag | taaaacaatg | tctggatgaa | gaaatgatcg | tattgctcac | agaatgcgtt | 1260 |
| gatagcttat | ccgaagatac | actggatagc | actccagaaa | cggaacagac | taagtcaaat | 1320 |

[illegible]

| | | | | | | | | | | | | | | | |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> | 349 | | | | | | | | | | | | | | |
| Met | His | His | His | His | His | His | Thr | Ala | Ala | Ser | Asp | Asn | Phe | Gln | Leu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ser | Gln | Gly | Gly | Gln | Gly | Phe | Ala | Ile | Pro | Ile | Gly | Gln | Ala | Met | Ala |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Ile | Ala | Gly | Gln | Ile | Lys | Leu | Pro | Thr | Val | His | Ile | Gly | Pro | Thr | Ala |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Phe | Leu | Gly | Leu | Gly | Val | Val | Asp | Asn | Asn | Gly | Asn | Gly | Ala | Arg | Val |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Gln | Arg | Val | Val | Gly | Ser | Ala | Pro | Ala | Ala | Ser | Leu | Gly | Ile | Ser | Thr |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Gly | Asp | Val | Ile | Thr | Ala | Val | Asp | Gly | Ala | Pro | Ile | Asn | Ser | Ala | Thr |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Ala | Met | Ala | Asp | Ala | Leu | Asn | Gly | His | His | Pro | Gly | Asp | Val | Ile | Ser |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Val | Thr | Trp | Gln | Thr | Lys | Ser | Gly | Gly | Thr | Arg | Thr | Gly | Asn | Val | Thr |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Leu | Ala | Glu | Gly | Pro | Pro | Ala | Glu | Phe | Cys | Arg | Tyr | Pro | Ser | His | Trp |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Arg | Pro | Leu | Met | Lys | Phe | Met | Ser | Ala | Thr | Ala | Val | Phe | Ala | Ala | Val |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Leu | Ser | Ser | Val | Thr | Glu | Ala | Ser | Ser | Ile | Gln | Asp | Gln | Ile | Lys | Asn |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Thr | Asp | Cys | Asn | Val | Ser | Lys | Val | Gly | Tyr | Ser | Thr | Ser | Gln | Ala | Phe |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Thr | Asp | Met | Met | Leu | Ala | Asp | Asn | Thr | Glu | Tyr | Arg | Ala | Ala | Asp | Ser |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Val | Ser | Phe | Tyr | Asp | Phe | Ser | Thr | Ser | Ser | Gly | Leu | Pro | Arg | Lys | His |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Leu | Ser | Ser | Ser | Ser | Glu | Ala | Ser | Pro | Thr | Thr | Glu | Gly | Val | Ser | Ser |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Ser | Ser | Ser | Gly | Glu | Asn | Thr | Glu | Asn | Ser | Gln | Asp | Ser | Ala | Pro | Ser |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Ser | Gly | Glu | Thr | Asp | Lys | Lys | Thr | Glu | Glu | Glu | Leu | Asp | Asn | Gly | Gly |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Ile | Ile | Tyr | Ala | Arg | Glu | Lys | Leu | Thr | Ile | Ser | Glu | Ser | Gln | Asp | Ser |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Leu | Ser | Asn | Pro | Ser | Ile | Glu | Leu | His | Asp | Asn | Ser | Phe | Phe | Phe | Gly |
| | 290 | | | | | 295 | | | | 300 | | | | | |
| Glu | Gly | Glu | Val | Ile | Phe | Asp | His | Arg | Val | Ala | Leu | Lys | Asn | Gly | Gly |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Ala | Ile | Tyr | Gly | Glu | Lys | Glu | Val | Val | Phe | Glu | Asn | Ile | Lys | Ser | Leu |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Leu | Val | Glu | Val | Asn | Ile | Ser | Val | Glu | Lys | Gly | Gly | Ser | Val | Tyr | Ala |
| | | | 340 | | | | | 345 | | | | | | | |

| <400> | 352 | | | | | | |
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| cagggattcg | ccattccgat | cgggcaggcg | atggcgatcg | cgggccagat | caagcttccc | | 120 |
| accgttcata | tcgggcctac | cgccttcctc | ggcttggggtg | ttgtcgacaa | caacggcaac | | 180 |
| ggcgcacgag | tccaacgcgt | ggtcgggagc | gctccggcgg | caagtctcgg | catctccacc | | 240 |
| ggcgacgtga | tcaccgcggt | cgacggcgct | ccgatcaact | cggccaccgc | gatggcggac | | 300 |
| gcgcttaacg | ggcatcatcc | cggtgacgtc | atctcgggtga | cctggcaaac | caagtcgggc | | 360 |
| ggcacgcgta | cagggaaacgt | gacattggcc | gagggacccc | cggccgaatt | ctgcagatat | | 420 |
| ccatcacact | ggcggccgct | cgatacaca | gtatcagaat | caccagaatc | aactcctagc | | 480 |
| cccgcagatg | tttttaggtaa | aggtggtgggt | atctatacag | aaaaaatcttt | gaccatcact | | 540 |
| ggaattacag | ggactataga | ttttgtcagt | aacatagcta | ccgattctgg | agcaggtgta | | 600 |
| ttcactaaag | aaaacttgtc | ttgcaccaac | acgaatagcc | tacagttttt | gaaaaactcg | | 660 |
| gcaggtcaac | atggaggagg | agcctacgtt | actcaaacca | tgtctgttac | taatacaact | | 720 |
| agtgaaagta | taactactcc | ccctctcgta | ggagaagtga | ttttctctga | aaatacagct | | 780 |
| aaagggcacg | gtggtggtat | ctgcactaac | aaactttctt | tatctaattt | aaaaacggtg | | 840 |
| actctcacta | aaaactctgc | aaaggagtct | ggaggagcta | tttttacaga | tctagcgtct | | 900 |
| ataccaacaa | catagacccc | agagtcttct | acccctcttt | cctcctcgcc | tgcaagcact | | 960 |
| cccgaagtga | ttgcttctgc | taaaataaat | cgattctttg | cctctacggc | agaaccggca | | 1020 |
| gccctctctc | taacagaggc | tgagtctgat | caaacggatc | aaacagaaac | ttctgatact | | 1080 |
| aatagcgata | tagacgtgtc | gattgagaac | attttgaaatg | tcgctatcaa | tcaaaacact | | 1140 |

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<211> 583

<212> PRT

<213> Chlamydia trachomatis

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Ile Ala Gly Gln Ile Lys Leu Pro Thr Val His Ile Gly Pro Thr Ala
 35          40          45
Phe Leu Gly Leu Gly Val Val Asp Asn Asn Gly Asn Gly Ala Arg Val
 50          55          60
Gln Arg Val Val Gly Ser Ala Pro Ala Ala Ser Leu Gly Ile Ser Thr
 65          70          75          80
Gly Asp Val Ile Thr Ala Val Asp Gly Ala Pro Ile Asn Ser Ala Thr
 85          90          95
Ala Met Ala Asp Ala Leu Asn Gly His His Pro Gly Asp Val Ile Ser
 100         105         110
Val Thr Trp Gln Thr Lys Ser Gly Thr Arg Thr Gly Asn Val Thr
 115         120         125
Leu Ala Glu Gly Pro Pro Ala Glu Phe Cys Arg Tyr Pro Ser His Trp
 130         135         140
Arg Pro Leu Asp Thr Gln Val Ser Glu Ser Pro Glu Ser Thr Pro Ser
 145         150         155         160
Pro Asp Asp Val Leu Gly Lys Gly Gly Ile Tyr Thr Glu Lys Ser
 165         170         175
Leu Thr Ile Thr Gly Ile Thr Gly Thr Ile Asp Phe Val Ser Asn Ile
 180         185         190
Ala Thr Asp Ser Gly Ala Gly Val Phe Thr Lys Glu Asn Leu Ser Cys
 195         200         205
Thr Asn Thr Asn Ser Leu Gln Phe Leu Lys Asn Ser Ala Gly Gln His
 210         215         220
Gly Gly Gly Ala Tyr Val Thr Gln Thr Met Ser Val Thr Asn Thr Thr
 225         230         235         240
Ser Glu Ser Ile Thr Thr Pro Pro Leu Val Gly Glu Val Ile Phe Ser
 245         250         255
Glu Asn Thr Ala Lys Gly His Gly Gly Gly Ile Cys Thr Asn Lys Leu
 260         265         270
Ser Leu Ser Asn Leu Lys Thr Val Thr Leu Thr Lys Asn Ser Ala Lys
 275         280         285
Glu Ser Gly Gly Ala Ile Phe Thr Asp Leu Ala Ser Ile Pro Thr Thr
 290         295         300
Asp Thr Pro Glu Ser Ser Thr Pro Ser Ser Ser Pro Ala Ser Thr

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 325 330 335
 Ala Glu Pro Ala Ala Pro Ser Leu Thr Glu Ala Glu Ser Asp Gln Thr
 340 345 350
 Asp Gln Thr Glu Thr Ser Asp Thr Asn Ser Asp Ile Asp Val Ser Ile
 355 360 365
 Glu Asn Ile Leu Asn Val Ala Ile Asn Gln Asn Thr Ser Ala Lys Lys
 370 375 380
 Gly Gly Ala Ile Tyr Gly Lys Lys Ala Lys Leu Ser Arg Ile Asn Asn
 385 390 395 400
 Leu Glu Leu Ser Gly Asn Ser Ser Gln Asp Val Gly Gly Gly Leu Cys
 405 410 415
 Leu Thr Glu Ser Val Glu Phe Asp Ala Ile Gly Ser Leu Leu Ser His
 420 425 430
 Tyr Asn Ser Ala Ala Lys Glu Gly Val Ile His Ser Lys Thr Val
 435 440 445
 Thr Leu Ser Asn Leu Lys Ser Thr Phe Thr Phe Ala Asp Asn Thr Val
 450 455 460
 Lys Ala Ile Val Glu Ser Thr Pro Glu Ala Pro Glu Glu Ile Pro Pro
 465 470 475 480
 Val Glu Gly Glu Glu Ser Thr Ala Thr Glu Asn Pro Asn Ser Asn Thr
 485 490 495
 Glu Gly Ser Ser Ala Asn Thr Asn Leu Glu Gly Ser Gln Gly Asp Thr
 500 505 510
 Ala Asp Thr Gly Thr Gly Val Val Asn Asn Glu Ser Gln Asp Thr Ser
 515 520 525
 Asp Thr Gly Asn Ala Glu Ser Gly Glu Gln Leu Gln Asp Ser Thr Gln
 530 535 540
 Ser Asn Glu Glu Asn Thr Leu Pro Asn Ser Ser Ile Asp Gln Ser Asn
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39

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36

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<400> 357
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35 40 45
Phe Leu Gly Leu Gly Val Val Asp Asn Asn Gly Asn Gly Ala Arg Val
50 55 60
Gln Arg Val Val Gly Ser Ala Pro Ala Ala Ser Leu Gly Ile Ser Thr
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Gly Asp Val Ile Thr Ala Val Asp Gly Ala Pro Ile Asn Ser Ala Thr
85 90 95
Ala Met Ala Asp Ala Leu Asn Gly His His Pro Gly Asp Val Ile Ser
100 105 110

09041301 0430

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Thr | Trp | Gln | Thr | Lys | Ser | Gly | Gly | Thr | Arg | Thr | Gly | Asn | Val | Thr |
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| Leu | Ala | Glu | Gly | Pro | Pro | Ala | Glu | Phe | Cys | Arg | Tyr | Pro | Ser | His | Trp |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Arg | Pro | Leu | Asp | Gln | Ser | Asn | Glu | Asn | Thr | Asp | Glu | Ser | Ser | Asp | Ser |
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| His | Thr | Glu | Glu | Ile | Thr | Asp | Glu | Ser | Val | Ser | Ser | Ser | Ser | Lys | Ser |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Gly | Ser | Ser | Thr | Pro | Gln | Asp | Gly | Gly | Ala | Ala | Ser | Ser | Gly | Ala | Pro |
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| Val | Thr | Ala | Ser | Ser | Asp | Asn | Pro | Asp | Ser | Ser | Ser | Ser | Gly | Asp | Ser |
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| Ala | Gly | Asp | Ser | Glu | Gly | Pro | Thr | Glu | Pro | Glu | Ala | Gly | Ser | Thr | Thr |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Glu | Thr | Pro | Thr | Leu | Ile | Gly | Gly | Gly | Ala | Ile | Tyr | Gly | Glu | Thr | Val |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Lys | Ile | Glu | Asn | Phe | Ser | Gly | Gln | Gly | Ile | Phe | Ser | Gly | Asn | Lys | Ala |
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| Arg | Arg | Thr | Val | Thr | Phe | Ser | Gly | Asn | Thr | Val | Ser | Ser | Gln | Ser | Thr |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Thr | Gly | Gln | Val | Ala | Gly | Gly | Ala | Ile | Tyr | Ser | Pro | Thr | Val | Thr | Ile |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Ala | Thr | Pro | Val | Val | Phe | Ser | Lys | Asn | Ser | Ala | Thr | Asn | Asn | Ala | Asn |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Asn | Ala | Thr | Asp | Thr | Gln | Arg | Lys | Asp | Thr | Phe | Gly | Gly | Ala | Ile | Gly |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Ala | Thr | Ser | Ala | Val | Ser | Leu | Ser | Gly | Gly | Ala | His | Phe | Leu | Glu | Asn |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Val | Ala | Asp | Leu | Gly | Ser | Ala | Ile | Gly | Leu | Val | Pro | Asp | Thr | Gln | Asn |
| | | | 405 | | | | | | 410 | | | | | 415 | |
| Thr | Glu | Thr | Val | Lys | Leu | Glu | Ser | Gly | Ser | Tyr | Tyr | Phe | Glu | Lys | Asn |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Lys | Ala | Leu | Lys | Arg | Ala | Thr | Ile | Tyr | Ala | Pro | Val | Val | Ser | Ile | Lys |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Ala | Tyr | Thr | Ala | Thr | Phe | Asn | Gln | Asn | Arg | Ser | Leu | Glu | Glu | Gly | Ser |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Ala | Ile | Tyr | Phe | Thr | Lys | Glu | Ala | Ser | Ile | Glu | Ser | Leu | Gly | Ser | Val |
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| Leu | Phe | Thr | Gly | Asn | Leu | Val | Thr | Pro | Thr | Leu | Ser | Thr | Thr | Thr | Glu |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Gly | Thr | Pro | Ala | Thr | Thr | Ser | Gly | Asp | Val | Thr | Lys | Tyr | Gly | Ala | Ala |
| | | | 500 | | | | | 505 | | | | | 510 | | |
| Ile | Phe | Gly | Gln | Ile | Ala | Ser | Ser | Asn | Gly | Ser | Gln | Thr | Asp | Asn | Leu |
| | | 515 | | | | | 520 | | | | | 525 | | | |
| Pro | Leu | Lys | Leu | Ile | Ala | Ser | Gly | Gly | Asn | Ile | Cys | Phe | Arg | Asn | Asn |
| | 530 | | | | | 535 | | | | | 540 | | | | |
| Glu | Tyr | Arg | Pro | Thr | Ser | Ser | Asp | Thr | Gly | Thr | Ser | Thr | Phe | Cys | Ser |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 |
| Ile | Ala | Gly | Asp | Val | Lys | Leu | Thr | Met | Gln | Ala | Ala | Lys | Gly | Lys | Thr |


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<211> 813

<212> DNA

<213> Chlamydia

<400> 360

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<211> 750

<212> DNA

<213> Chlamydia

<400> 361

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gaccagcctt ttgttttata tcctaagat attttgggag cgtgtaatcg catcgagaa 360
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ccgttagcgg tgatagagca ggcacctaat atggtctacc attcatatcc tacttctcga 660
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<210> 362
 <211> 412
 <212> PRT
 <213> Chlamydia

<400> 362

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| Met | His | His | His | His | His | His | Pro | Pro | Glu | Ser | Gly | Leu | Ile | Ile | Ala |
| | | | | 5 | | | | | 10 | | | | | 15 | |
| Ile | His | Asp | Asp | Pro | Arg | Ser | Leu | Ser | Pro | Glu | Lys | Gly | Glu | Asn | Ala |
| | | 20 | | | | | | 25 | | | | | 30 | | |
| Phe | His | Phe | Ser | Leu | Ser | Lys | Ala | Leu | Phe | Ala | Thr | Leu | Phe | Arg | Glu |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Glu | Leu | Ser | Gly | Leu | Thr | Pro | Ala | Leu | Val | Ser | Ser | Tyr | Gln | Val | Ser |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Glu | Asp | Gly | Arg | Phe | Tyr | Arg | Phe | Cys | Ile | Arg | Lys | Asp | Ala | Lys | Trp |
| | 65 | | | | 70 | | | | | 75 | | | | | 80 |
| Ser | Asp | Gly | Ser | Leu | Leu | Ala | Glu | Asp | Val | Ile | Ala | Ala | Trp | Glu | |
| | | | 85 | | | | | 90 | | | | | 95 | | |
| His | Thr | Lys | Gln | Ala | Gly | Arg | Tyr | Ser | Leu | Leu | Phe | Glu | Lys | Leu | Ser |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Phe | Arg | Ala | Ser | Ser | Ser | Ser | Glu | Ile | Leu | Ile | Glu | Leu | Lys | Glu | Pro |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Glu | Pro | Gln | Leu | Leu | Ala | Ile | Leu | Ala | Ser | Pro | Phe | Phe | Ala | Val | Tyr |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Arg | Pro | Glu | Asn | Pro | Phe | Leu | Ser | Ser | Gly | Pro | Phe | Met | Pro | Lys | Thr |
| | 145 | | | | 150 | | | | | 155 | | | | | 160 |
| Tyr | Val | Gln | Gly | Gln | Thr | Leu | Val | Leu | Gln | Lys | Asn | Pro | Tyr | Tyr | Tyr |
| | | | 165 | | | | | | 170 | | | | | 175 | |
| Asp | His | Ala | His | Val | Glu | Leu | His | Ser | Ile | Asp | Phe | Arg | Ile | Ile | Pro |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Asn | Ile | Tyr | Thr | Ala | Leu | His | Leu | Leu | Arg | Arg | Gly | Asp | Val | Asp | Trp |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Val | Gly | Gln | Pro | Trp | His | Gln | Gly | Ile | Pro | Phe | Glu | Leu | Arg | Thr | Thr |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Ser | Ala | Leu | Tyr | Thr | His | Tyr | Pro | Val | Asp | Gly | Thr | Phe | Trp | Leu | Ile |
| | 225 | | | | 230 | | | | | 235 | | | | | 240 |
| Leu | Asn | Pro | Lys | Asp | Pro | Val | Leu | Ser | Ser | Leu | Ser | Asn | Arg | Gln | Arg |
| | | | 245 | | | | | | 250 | | | | | 255 | |
| Leu | Ile | Ala | Ala | Ile | Gln | Lys | Glu | Lys | Leu | Val | Lys | Gln | Ala | Leu | Gly |
| | | 260 | | | | | | 265 | | | | | 270 | | |
| Thr | Gln | Tyr | Arg | Val | Ala | Glu | Ser | Pro | Ser | Pro | Glu | Gly | Ile | Ile | |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Ala | His | Gln | Glu | Ala | Ser | Thr | Pro | Phe | Pro | Gly | Lys | Ile | Thr | Leu | Ile |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Tyr | Pro | Asn | Asn | Ile | Thr | Arg | Cys | Gln | Arg | Leu | Ala | Glu | Val | Leu | Gln |
| | 305 | | | | 310 | | | | | 315 | | | | | 320 |
| Glu | Gln | Cys | Arg | Asp | Ala | Gly | Ile | Gln | Leu | Thr | Leu | Glu | Gly | Leu | Glu |
| | | | 325 | | | | | | 330 | | | | | 335 | |
| Tyr | His | Val | Phe | Val | Gln | Lys | Arg | Ala | Thr | Gln | Asp | Phe | Ser | Val | Ser |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Thr | Ala | Thr | Ser | Ile | Ala | Phe | His | Pro | Leu | Ala | Lys | Ser | Lys | Phe | Asp |
| | | 355 | | | | 360 | | | | | | 365 | | | |
| Gln | Thr | Ala | Leu | Asp | Asn | Phe | Thr | Cys | Leu | Pro | Leu | Tyr | His | Ile | Glu |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Tyr | Asp | Tyr | Ile | Leu | Ser | Arg | Pro | Leu | Asp | Gln | Ile | Val | His | Tyr | Pro |
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09041330 0400

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<211> 433
<212> PRT
<213> Chlamydia
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| Ile | Ile | Ala | Phe | Leu | Thr | Val | Gly | Cys | Ser | Phe | Ser | Pro | Pro | Glu | Ser |
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| Gly | Leu | Ile | Ile | Ala | Ile | His | Asp | Asp | Pro | Arg | Ser | Leu | Ser | Pro | Glu |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Lys | Gly | Glu | Asn | Ala | Phe | His | Phe | Ser | Leu | Ser | Lys | Ala | Leu | Phe | Ala |
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| Thr | Leu | Phe | Arg | Glu | Glu | Leu | Ser | Gly | Leu | Thr | Pro | Ala | Leu | Val | Ser |
| | 65 | | | | 70 | | | | | 75 | | | | 80 | |
| Ser | Tyr | Gln | Val | Ser | Glu | Asp | Gly | Arg | Phe | Tyr | Arg | Phe | Cys | Ile | Arg |
| | | | | 85 | | | | 90 | | | | | | 95 | |
| Lys | Asp | Ala | Lys | Trp | Ser | Asp | Gly | Ser | Leu | Leu | Leu | Ala | Glu | Asp | Val |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Ile | Ala | Ala | Trp | Glu | His | Thr | Lys | Gln | Ala | Gly | Arg | Tyr | Ser | Leu | Leu |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Phe | Glu | Lys | Leu | Ser | Phe | Arg | Ala | Ser | Ser | Ser | Ser | Glu | Ile | Leu | Ile |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Glu | Leu | Lys | Glu | Pro | Glu | Pro | Gln | Leu | Leu | Ala | Ile | Leu | Ala | Ser | Pro |
| 145 | | | | | 150 | | | | | 155 | | | | 160 | |
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| | | | | 165 | | | | 170 | | | | | | 175 | |
| Phe | Met | Pro | Lys | Thr | Tyr | Val | Gln | Gly | Gln | Thr | Leu | Val | Leu | Gln | Lys |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Asn | Pro | Tyr | Tyr | Tyr | Asp | His | Ala | His | Val | Glu | Leu | His | Ser | Ile | Asp |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Phe | Arg | Ile | Ile | Pro | Asn | Ile | Tyr | Thr | Ala | Leu | His | Leu | Leu | Arg | Arg |
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| Gly | Asp | Val | Asp | Trp | Val | Gly | Gln | Pro | Trp | His | Gln | Gly | Ile | Pro | Phe |
| 225 | | | | | 230 | | | | | 235 | | | | 240 | |
| Glu | Leu | Arg | Thr | Thr | Ser | Ala | Leu | Tyr | Thr | His | Tyr | Pro | Val | Asp | Gly |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Thr | Phe | Trp | Leu | Ile | Leu | Asn | Pro | Lys | Asp | Pro | Val | Leu | Ser | Ser | Leu |
| | | | 260 | | | | | 265 | | | | | 270 | | |
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| Pro | Glu | Gly | Ile | Ile | Ala | His | Gln | Glu | Ala | Ser | Thr | Pro | Phe | Pro | Gly |
| 305 | | | | | 310 | | | | | 315 | | | | 320 | |
| Lys | Ile | Thr | Leu | Ile | Tyr | Pro | Asn | Asn | Ile | Thr | Arg | Cys | Gln | Arg | Leu |
| | | | | 325 | | | | 330 | | | | | 335 | | |
| Ala | Glu | Val | Leu | Gln | Glu | Gln | Cys | Arg | Asp | Ala | Gly | Ile | Gln | Leu | Thr |
| | | | 340 | | | | | 345 | | | | | | | |

370 375 380
 Lys Ser Lys Phe Asp Gln Thr Ala Leu Asp Asn Phe Thr Cys Leu Pro
 385 390 395 400
 Leu Tyr His Ile Glu Tyr Asp Tyr Ile Leu Ser Arg Pro Leu Asp Gln
 405 410 415
 Ile Val His Tyr Pro Ser Gly Ser Val Asp Leu Thr Tyr Ala His Phe
 420 425 430
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<400> 364
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 35 40 45
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 50 55 60
 Ala Ser Ile Thr Ile Gly Leu Asp Ala Glu Lys Ala Tyr Gln Leu Ile
 65 70 75 80
 Leu Glu Lys Leu Gly Asp Gln Ile Leu Gly Gly Ile Ala Asp Thr Ile
 85 90 95
 Val Asp Ser Thr Val Gln Asp Ile Leu Asp Lys Ile Thr Thr Asp Pro
 100 105 110
 Ser Leu Gly Leu Leu Lys Ala Phe Asn Asn Phe Pro Ile Thr Asn Lys
 115 120 125
 Ile Gln Cys Asn Gly Leu Phe Thr Pro Arg Asn Ile Glu Thr Leu Leu
 130 135 140
 Gly Gly Thr Glu Ile Gly Lys Phe Thr Val Thr Pro Lys Ser Ser Gly
 145 150 155 160
 Ser Met Phe Leu Val Ser Ala Asp Ile Ile Ala Ser Arg Met Glu Gly
 165 170 175
 Gly Val Val Leu Ala Leu Val Arg Glu Gly Asp Ser Lys Pro Tyr Ala
 180 185 190
 Ile Ser Tyr Gly Tyr Ser Ser Gly Val Pro Asn Leu Cys Ser Leu Arg
 195 200 205
 Thr Arg Ile Ile Asn Thr Gly Leu Thr Pro Thr Thr Tyr Ser Leu Arg
 210 215 220
 Val Gly Gly Leu Glu Ser Gly Val Val Trp Val Asn Ala Leu Ser Asn
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090440-0400

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| Met | His | His | His | His 5 | His | His | Lys | Ile | Thr 10 | Pro | Ile | Lys | Thr | Arg 15 | Lys |
| Val | Phe | Ala | His 20 | Asp | Ser | Leu | Gln | Glu 25 | Ile | Leu | Gln | Glu | Ala 30 | Leu | Pro |
| Pro | Leu | Gln 35 | Glu | Arg | Ser | Val | Val 40 | Val | Val | Ser | Ser | Lys 45 | Ile | Val | Ser |
| Leu | Cys 50 | Glu | Gly | Ala | Val | Ala 55 | Asp | Ala | Arg | Met | Cys 60 | Lys | Ala | Glu | Leu |
| Ile 65 | Lys | Lys | Glu | Ala | Asp 70 | Ala | Tyr | Leu | Phe | Cys 75 | Glu | Lys | Ser | Gly | Ile 80 |
| Tyr | Leu | Thr | Lys | Lys 85 | Glu | Gly | Ile | Leu | Ile 90 | Pro | Ser | Ala | Gly | Ile 95 | Asp |
| Glu | Ser | Asn 100 | Thr | Asp | Gln | Pro | Phe | Val 105 | Leu | Tyr | Pro | Lys | Asp 110 | Ile | Leu |
| Gly | Ser | Cys 115 | Asn | Arg | Ile | Gly | Glu 120 | Trp | Leu | Arg | Asn | Tyr 125 | Phe | Arg | Val |
| Lys | Glu 130 | Leu | Gly | Val | Ile | Ile 135 | Thr | Asp | Ser | His | Thr 140 | Thr | Pro | Met | Arg |
| Arg 145 | Gly | Val | Leu | Gly 150 | Ile | Gly | Leu | Cys | Trp | Tyr 155 | Gly | Phe | Ser | Pro | Leu |
| His | Asn | Tyr | Ile | Gly 165 | Ser | Leu | Asp | Cys | Phe 170 | Gly | Arg | Pro | Leu | Gln 175 | Met |
| Thr | Gln | Ser | Asn 180 | Leu | Val | Asp | Ala | Leu 185 | Ala | Val | Ala | Ala | Val 190 | Val | Cys |
| Met | Gly | Glu 195 | Gly | Asn | Glu | Gln | Thr 200 | Pro | Leu | Ala | Val | Ile 205 | Glu | Gln | Ala |
| Pro | Asn 210 | Met | Val | Tyr | His | Ser 215 | Tyr | Pro | Thr | Ser | Arg 220 | Glu | Glu | Tyr | Cys |
| Ser 225 | Leu | Arg | Ile | Asp | Glu 230 | Thr | Glu | Asp | Leu | Tyr 235 | Gly | Pro | Phe | Leu | Gln 240 |
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<213> Chlamydia pneumoniae

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| ctagtctatg | aggttgtaga | caacagcatt | gacgaagcca | tggcaggtta | ttgctctagg | 180 |
| attgatgttc | gcatttttaga | ggacgggggt | attgtcatcg | tagataatgg | ccgaggaatc | 240 |
| cctatagaag | ttcacgaaag | agagtctgca | aaacaaggta | gagaggtctc | tgtcttagaa | 300 |
| gtggttttaa | cagtccttca | tgctgagga | aaattcgata | aggtagtcta | taaagtatcc | 360 |
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| acggtcttta | aagataagaa | gtgttatcaa | atggagtctc | ctaggggaat | tcctgtaact | 480 |
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| cttgctttct | taaatcgtgg | gatcacaata | gtctttgaag | atgatcgaga | tgttagcttt | 660 |
| gacaaggtta | ccttctttta | tgagggaggg | attcaatctt | ttgtaagtta | cctgaatcaa | 720 |
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| tcctatgcca | ataatatccc | tacacgcca | ggaggaaacg | atcttacagg | gttttctacc | 900 |
| gcgcttacta | qqgtaatcaa | tacgtatatt | aaagctcata | accttgccga | qaataataag | 960 |

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 <213> Chlamydia pneumoniae

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 tctaaaagt taccctcaga tttattatgt attttacaag attgtatgga gggggcaacg 300
 gctctttttt ccgtggaatc aggagctcct tacggggatc actactatcg cttttcaccg 360
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 cgctatgcca tcttggtttt aacagataaa agcgtctcta aaggcaaagc cttagatcgt 660
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 aatgatctcg atcttattga gagaggagat tttaaaattg tgatgagttc cgcacctgaa 780
 gagatgcacg ttcattgcga ctttctagct cccccagc ataagaatgg cattctttca 840
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<210> 368
 <211> 237
 <212> DNA
 <213> Chlamydia pneumoniae

<400> 368

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 atcggaaga tcattggcaa agaaggccgt acgatcaaag cgattcgtac tcttctggtt 180
 tctgtagcaa gcaggaacaa tgtaagggtc agtttagaaa ttatggaaga aaagtag 237

<210> 369

<211> 1437

<212> DNA

<213> Chlamydia pneumoniae

<400> 369

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 tggactttat tccttatgga cgacgggaaa atgcataaag ttgccaatat tgcaggaaga 180
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 aataccgact tgatagcttt tcatgactct tatgatggaa gagaaaaaga acctgatatt 420
 ttacctgcaa agctccccgt gcttttactt catgggtgtg acgggattgc tgtggggatg 480
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 aatgataaaa aattcactgt gtttctcgac tttccttcgg gaggattgat ggatccctcg 600
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<210> 370

<211> 774

<212> DNA

<213> Chlamydia pneumoniae

<400> 370

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 acgaggggtg atgggttttt atatttaaag cctctctctt gtgctgatgc gcaactcatt 180
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 atccatacgg gagtgccctca tgctgtcgta attcttctcg agatttctac tttagatctt 480
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 tcctatggat ggaaggagtc gatccaaatc catacttggg gtggagagct tatgactgtg 720
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<211> 576
 <212> DNA
 <213> Chlamydia pneumoniae

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 ctttggtatt tggaattaaa agatcctgga aagcctatag tttttgtgat caatagtcct 180
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 ggtggaccga ttaccgggtca ggcaaccgat ttagacattc atgagagaga gatttttaaa 420
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 gaaaaggcta tcgatagaga tatgtggatg acagccaacg aagctaagga ttttggttta 540
 ttggatggca ttttattctc cttcaacgat ctctaa 576

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 <212> DNA
 <213> Chlamydia pneumoniae

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<210> 373
 <211> 369
 <212> DNA
 <213> Chlamydia pneumoniae

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 ttgatcgcca tcattcttta tcgaggtcag agacatagac tttctttacc agtaagagga 300
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 aagaaataa 369

<210> 374
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 <212> DNA
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<210> 380

<211> 1635

<212> DNA

<213> Chlamydia pneumoniae

<400> 380

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<210> 381

<211> 1995

<212> DNA

<213> Chlamydia pneumoniae

<400> 381

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<210> 382
<211> 987
<212> DNA
<213> Chlamydia pneumoniae

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<400> 382
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cgatctatg atgtgccggg tacagagaga gctctctcag ggtgctgat ggagctcgat 180
gacggtgcat atcctctttt acatcgtctg cgtgtgacga catcgtaaa cgacgctttt 240
gatggtatcg atgcggcggt tctgataggt gctgtgcctc gtggaccgg tatggagcga 300
ggagatcttt taaagcaaaa tggtcagatc ttttcgttac agggggccgc tttaaataca 360
gcagcaaaaa gagatgctaa gatttttgtt gtagggaacc ctgtcaatac gaattgctgg 420
attgctatga aacatgctcc cagattgcat cgaaaaaatt tccatgcgat gttacgcttg 480
gatcagaatc gcatgcatag catgctcgct catcgctg aggttcctc agaggaggtc 540
tcccggtgtt tcatctgggg aaatcattct gcaaagcagg ttcctgactt cacacaagca 600
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<210> 383
<211> 654
<212> DNA
<213> Chlamydia pneumoniae

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<400> 383
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ttcgttgtct cgtctgctgc agaaaagtct tcaatttcgt tagctttgtc tcagggtgaa 360
attaaggatg ctttgtaccg tatccgagaa gtccaccctc tagctttaat agaagctctt 420
gctgaaaacc ctgccttgat agaagggatg aaaaagatgc aaggccgtga ttggatttgg 480

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aatcttttct taacacaatt aagtgaagta ttttctcaag cttggtctca aggggttatac 540
 tctgaagaag atatcgccgc atttgcctcc accttaggtt tggactccgg gaccgttgcg 600
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<210> 384

<211> 813

<212> DNA

<213> Chlamydia pneumoniae

<400> 384

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<210> 385

<211> 1956

<212> DNA

<213> Chlamydia pneumoniae

<400> 385

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<210> 386

<211> 805

<212> PRT

<213> Chlamydia pneumoniae

<400> 386

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Thr Gly Ile Thr Gly Leu His His Leu Val Tyr Glu Val Val Asp Asn
      35              40              45

Ser Ile Asp Glu Ala Met Ala Gly Tyr Cys Ser Arg Ile Asp Val Arg
      50              55              60

Ile Leu Glu Asp Gly Gly Ile Val Ile Val Asp Asn Gly Arg Gly Ile
      65              70              75              80

Pro Ile Glu Val His Glu Arg Glu Ser Ala Lys Gln Gly Arg Glu Val
      85              90              95

Ser Ala Leu Glu Val Val Leu Thr Val Leu His Ala Gly Gly Lys Phe
      100             105             110

Asp Lys Asp Ser Tyr Lys Val Ser Gly Gly Leu His Gly Val Gly Val
      115             120             125

Ser Cys Val Asn Ala Leu Ser Glu Lys Leu Val Ala Thr Val Phe Lys
      130             135             140

Asp Lys Lys Cys Tyr Gln Met Glu Phe Ser Arg Gly Ile Pro Val Thr
      145             150             155             160

Pro Leu Gln Tyr Val Ser Val Ser Asp Arg Gln Gly Thr Glu Ile Val
      165             170             175

Phe Tyr Pro Asp Pro Lys Ile Phe Ser Thr Cys Thr Phe Asp Arg Ser
      180             185             190

Ile Leu Met Lys Arg Leu Arg Glu Leu Ala Phe Leu Asn Arg Gly Ile
      195             200             205

Thr Ile Val Phe Glu Asp Asp Arg Asp Val Ser Phe Asp Lys Val Thr
      210             215             220

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044342220

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 245 250 255
 Val Gly Asp Asp Gly Glu Ile Glu Phe Glu Ala Ala Leu Gln Trp Asn
 260 265 270
 Ser Gly Tyr Ser Glu Leu Val Tyr Ser Tyr Ala Asn Asn Ile Pro Thr
 275 280 285
 Arg Gln Gly Gly Thr His Leu Thr Gly Phe Ser Thr Ala Leu Thr Arg
 290 295 300
 Val Ile Asn Thr Tyr Ile Lys Ala His Asn Leu Ala Lys Asn Asn Lys
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 Leu Ala Leu Thr Gly Glu Asp Ile Arg Glu Gly Leu Thr Ala Val Ile
 325 330 335
 Ser Val Lys Val Pro Asn Pro Gln Phe Glu Gly Gln Thr Lys Gln Lys
 340 345 350
 Leu Gly Asn Ser Asp Val Ser Ser Val Ala Gln Gln Val Val Gly Glu
 355 360 365
 Ala Leu Thr Ile Phe Phe Glu Glu Asn Pro Gln Ile Ala Arg Met Ile
 370 375 380
 Val Asp Lys Val Phe Val Ala Ala Gln Ala Arg Glu Ala Ala Lys Lys
 385 390 395 400
 Ala Arg Glu Leu Thr Leu Arg Lys Ser Ala Leu Asp Ser Ala Arg Leu
 405 410 415
 Pro Gly Lys Leu Ile Asp Cys Leu Glu Lys Asp Pro Glu Lys Cys Glu
 420 425 430
 Met Tyr Ile Val Glu Gly Asp Ser Ala Gly Gly Ser Ala Lys Gln Gly
 435 440 445
 Arg Asp Arg Arg Phe Gln Ala Ile Leu Pro Ile Arg Gly Lys Ile Leu
 450 455 460
 Asn Val Glu Lys Ala Arg Leu Gln Lys Ile Phe Gln Asn Gln Glu Ile
 465 470 475 480
 Gly Thr Ile Ile Ala Ala Leu Gly Cys Gly Ile Gly Ala Asp Asn Phe
 485 490 495
 Asn Leu Ser Lys Leu Arg Tyr Arg Arg Ile Ile Ile Met Thr Asp Ala
 500 505 510
 Asp Val Asp Gly Ser His Ile Arg Thr Leu Leu Leu Thr Phe Phe Tyr
 515 520 525

0094132-042301

Arg His Met Thr Ala Leu Ile Glu Asn Glu Cys Val Tyr Ile Ala Gln
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 Ser Glu Lys Glu Met Asp Ser Tyr Leu Leu Met Leu Gly Thr Asn Glu
 565 570 575
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 580 585 590
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 595 600 605
 Thr Leu Glu Lys Lys Ala Ile Pro Phe Ser Glu Phe Leu Glu Met Tyr
 610 615 620
 Lys Glu Gly Ile Gly Tyr Pro Leu Tyr Tyr Leu Ala Pro Ala Thr Gly
 625 630 635 640
 Met Gln Gly Gly Arg Tyr Leu Tyr Ser Asp Glu Glu Lys Glu Glu Ala
 645 650 655
 Leu Ala Gln Glu Glu Thr His Lys Phe Lys Ile Ile Glu Leu Tyr Lys
 660 665 670
 Val Ala Val Phe Val Asp Ile Gln Asn Gln Leu Lys Glu Tyr Gly Leu
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 Asp Ile Ser Ser Tyr Leu Ile Pro Gln Lys Asn Glu Ile Val Ile Gly
 690 695 700
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 705 710 715 720
 Val Ile Asn Tyr Leu Lys Asn Leu Gly Arg Lys Gly Ile Glu Ile Gln
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 Arg Tyr Lys Gly Leu Gly Glu Met Asn Ala Asp Gln Leu Trp Asp Thr
 740 745 750
 Thr Met Asn Pro Glu Gln Arg Thr Leu Ile His Val Ser Leu Lys Asp
 755 760 765
 Ala Val Glu Ala Asp His Ile Phe Thr Met Leu Met Gly Glu Glu Val
 770 775 780
 Pro Pro Arg Arg Glu Phe Ile Glu Ser His Ala Leu Ser Ile Arg Ile
 785 790 795 800
 Asn Asn Leu Asp Ile
 805

<210> 387

<211> 295

<213> Chlamydia pneumoniae

Met Glu Lys Leu Leu Val Thr Asp Ile Asp Gly Thr Ile Thr His Gln
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Ser His His Leu Asp Lys Lys Val Tyr Glu Arg Leu Tyr Ala Leu His
20 25 30

Gln Ala Gly Trp Lys Leu Phe Phe Leu Thr Gly Arg Tyr Tyr Lys Tyr
35 40 45

Ala Ala Arg Leu Phe Ser Asp Phe Asp Ala Pro Tyr Leu Leu Gly Cys
50 55 60

Gln Asn Gly Ala Ser Val Trp Ser Ser Thr Ser Ser Asn Leu Leu Tyr
65 70 75 80

Ser Lys Ser Leu Pro Ser Asp Leu Leu Cys Ile Leu Gln Asp Cys Met
85 90 95

Glu Gly Ala Thr Ala Leu Phe Ser Val Glu Ser Gly Ala Pro Tyr Gly
100 105 110

Asp His Tyr Tyr Arg Phe Ser Pro Thr Pro Ile Ala Gln Asp Leu His
115 120 125

Glu Tyr Val Asp Pro Arg Tyr Phe Pro Asn Ala Lys Glu Arg Glu Ile
130 135 140

Leu Phe Glu Thr Arg Ser Leu Lys Asp Asp Tyr Ala Phe Pro Ser Phe
145 150 155 160

Ala Ala Ala Lys Val Phe Gly Leu Arg Asp Glu Val Ile Arg Ile Gln
165 170 175

Lys Glu Leu Glu Arg Gln Glu Ala Leu Thr Ser Val Ala Thr Met Thr
180 185 190

Leu Met Arg Trp Pro Phe Asp Phe Arg Tyr Ala Ile Leu Phe Leu Thr
195 200 205

Asp Lys Ser Val Ser Lys Gly Lys Ala Leu Asp Arg Val Val Asn Ile
210 215 220

Leu Tyr Asp Gly Lys Lys Pro Phe Val Met Ala Ser Gly Asp Asp Ala
225 230 235 240

Asn Asp Leu Asp Leu Ile Glu Arg Gly Asp Phe Lys Ile Val Met Ser
245 250 255

Ser Ala Pro Glu Glu Met His Val His Ala Asp Phe Leu Ala Pro Pro
260 265 270

Ala Asp Lys Asn Gly Ile Leu Ser Ala Trp Glu Ala Gly Val Arg Tyr
275 280 285

Tyr Asp Asp Leu Met Ser Leu
290 295

<210> 388

<211> 78

<212> PRT

<213> Chlamydia pneumoniae

<400> 388

Met Lys Glu Phe Leu Ala Tyr Ile Ile Lys Asn Leu Val Asp Arg Pro
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20 25 30

Glu Leu Ser Val Ala Lys Pro Asp Ile Gly Lys Ile Ile Gly Lys Glu
35 40 45

Gly Arg Thr Ile Lys Ala Ile Arg Thr Leu Leu Val Ser Val Ala Ser
50 55 60

Arg Asn Asn Val Arg Val Ser Leu Glu Ile Met Glu Glu Lys
65 70 75

<210> 389

<211> 478

<212> PRT

<213> Chlamydia pneumoniae

<400> 389

Met Arg Asp Val Ser Glu Leu Phe Arg Thr His Phe Met His Tyr Ala
5 10 15

Ser Tyr Val Ile Leu Glu Arg Ala Ile Pro His Ile Leu Asp Gly Leu
20 25 30

Lys Pro Val Gln Arg Arg Leu Leu Trp Thr Leu Phe Leu Met Asp Asp
35 40 45

Gly Lys Met His Lys Val Ala Asn Ile Ala Gly Arg Thr Met Ala Leu
50 55 60

His Pro His Gly Asp Ala Pro Ile Val Glu Ala Leu Val Val Leu Ala
65 70 75 80

Asn Lys Gly Tyr Leu Ile Asp Thr Gln Gly Asn Phe Gly Asn Pro Leu
85 90 95

Thr Gly Asp Pro His Ala Ala Ala Arg Tyr Ile Glu Ala Arg Leu Ser
100 105 110

Pro Leu Ala Arg Glu Thr Leu Phe Asn Thr Asp Leu Ile Ala Phe His
115 120 125

Asp Ser Tyr Asp Gly Arg Glu Lys Glu Pro Asp Ile Leu Pro Ala Lys
 130 135 140
 Leu Pro Val Leu Leu Leu His Gly Val Asp Gly Ile Ala Val Gly Met
 145 150 155 160
 Thr Thr Lys Ile Phe Pro His Asn Phe Ala Glu Leu Leu Lys Ala Gln
 165 170 175
 Ile Ala Ile Leu Asn Asp Lys Lys Phe Thr Val Phe Pro Asp Phe Pro
 180 185 190
 Ser Gly Gly Leu Met Asp Pro Ser Glu Tyr Gln Asp Gly Leu Gly Ser
 195 200 205
 Ile Thr Leu Arg Ala Ser Ile Asp Ile Ile Asn Asp Lys Thr Leu Val
 210 215 220
 Val Lys Gln Ile Cys Pro Gln Ser Thr Thr Glu Thr Leu Ile Arg Ser
 225 230 235 240
 Ile Glu Asn Ala Ala Lys Arg Gly Thr Ile Lys Ile Asp Thr Ile Gln
 245 250 255
 Asp Phe Ser Thr Asp Val Pro His Ile Glu Ile Lys Leu Pro Lys Gly
 260 265 270
 Ser Arg Ala Lys Glu Met Leu Pro Leu Leu Phe Glu His Thr Glu Cys
 275 280 285
 Gln Val Ile Leu Tyr Ser Lys Pro Thr Val Ile Tyr Glu Asn Lys Pro
 290 295 300
 Val Glu Cys Ser Ile Ser Glu Ile Leu Lys Leu His Thr Thr Ala Leu
 305 310 315 320
 Gln Gly Tyr Leu Glu Lys Glu Leu Leu Leu Leu Gln Glu Gln Leu Thr
 325 330 335
 Leu Asp His Tyr His Lys Thr Leu Glu Tyr Ile Phe Ile Lys His Lys
 340 345 350
 Leu Tyr Asp Ser Val Arg Glu Val Leu Ala Ile Asn Lys Lys Ile Ser
 355 360 365
 Ala Asp Asp Leu His Gln Ala Val Leu His Ala Leu Glu Pro Trp Leu
 370 375 380
 His Glu Leu Ala Thr Pro Val Thr Lys Gln Asp Thr Ser Gln Leu Ala
 385 390 395 400
 Ser Leu Thr Ile Lys Lys Ile Leu Cys Phe Asn Glu Glu Ala Cys Thr
 405 410 415
 Lys Glu Leu Leu Ala Ile Glu Lys Lys Gln Ala Ala Ile Gln Lys Asp
 420 425 430

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Leu Gly Arg Ile Lys Glu Val Thr Val Lys Tyr Leu Lys Gly Leu Leu
435 440 445

Glu Arg His Gly His Leu Gly Glu Arg Lys Thr Gln Ile Thr Asn Phe
450 455 460

Lys Thr Ala Lys Thr Ser Ile Leu Lys Gln Gln Thr Leu Ile
465 470 475

<210> 390

<211> 257

<212> PRT

<213> Chlamydia pneumoniae

<400> 390

Met Ala Phe Tyr Ser Pro Ser Thr Ile Ser Lys Tyr Phe Ile Tyr Ser
5 10 15

Gly Ala Gly Asn Arg Phe Leu Leu Gly Glu Thr Leu Pro Glu Val Glu
20 25 30

Asp Val Arg Phe Leu Cys Gln Glu Thr Arg Val Asp Gly Phe Leu Tyr
35 40 45

Leu Lys Pro Ser Ser Cys Ala Asp Ala Gln Leu Ile Ile Phe Asn Ser
50 55 60

Asp Gly Ser Arg Pro Thr Met Cys Gly Asn Gly Leu Arg Cys Ala Ile
65 70 75 80

Ala His Leu Ala Ser Gln Lys Gly Lys Ser Asp Ile Ser Val Ser Thr
85 90 95

Asp Ser Gly Leu Tyr Ser Gly Tyr Phe Tyr Ser Trp Asp Arg Val Leu
100 105 110

Val Asp Met Thr Leu Ala Asp Trp Arg Ala Ser Val His Arg Leu Glu
115 120 125

Ser Arg Pro Asp Pro Leu Pro Lys Glu Val Val Cys Ile His Thr Gly
130 135 140

Val Pro His Ala Val Val Ile Leu Pro Glu Ile Ser Thr Leu Asp Leu
145 150 155 160

Ser Ile Leu Gly Pro Phe Leu Arg Tyr His Gln Thr Phe Ser Pro Asp
165 170 175

Gly Val Asn Val Asn Phe Val Gln Ile Leu Gly His Cys Gln Leu Arg
180 185 190

Val Arg Thr Tyr Glu Arg Gly Val Glu Gly Glu Thr Ala Ala Cys Gly
195 200 205

Thr Gly Ala Leu Ala Ser Ala Leu Val Val Ser Asn Ser Tyr Gly Trp
210 215 220

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Lys Glu Ser Ile Gln Ile His Thr Trp Gly Gly Glu Leu Met Thr Val
225 230 235 240

Ser Gln Asn Arg Gly Arg Val Tyr Leu Gln Gly Ser Val Thr Arg Asp
245 250 255

Leu

<210> 391

<211> 191

<212> PRT

<213> Chlamydia pneumoniae

<400> 391

Met Ala Asp Gly Glu Val His Lys Leu Arg Asp Ile Ile Glu Lys Glu
5 10 15

Leu Leu Glu Ala Arg Arg Val Phe Phe Ser Glu Pro Val Thr Glu Lys
20 25 30

Ser Ala Ser Asp Ala Ile Lys Lys Leu Trp Tyr Leu Glu Leu Lys Asp
35 40 45

Pro Gly Lys Pro Ile Val Phe Val Ile Asn Ser Pro Gly Gly Ser Val
50 55 60

Asp Ala Gly Phe Ala Val Trp Asp Gln Ile Lys Met Leu Thr Ser Pro
65 70 75 80

Val Thr Thr Val Val Thr Gly Leu Ala Ala Ser Met Gly Ser Val Leu
85 90 95

Ser Leu Cys Ala Ala Pro Gly Arg Arg Phe Ala Thr Pro His Ser Arg
100 105 110

Ile Met Ile His Gln Pro Ser Ile Gly Gly Pro Ile Thr Gly Gln Ala
115 120 125

Thr Asp Leu Asp Ile His Ala Arg Glu Ile Leu Lys Thr Lys Ala Arg
130 135 140

Ile Ile Asp Val Tyr Val Glu Ala Thr Asn Gln Pro Arg Asp Ile Ile
145 150 155 160

Glu Lys Ala Ile Asp Arg Asp Met Trp Met Thr Ala Asn Glu Ala Lys
165 170 175

Asp Phe Gly Leu Leu Asp Gly Ile Leu Phe Ser Phe Asn Asp Leu
180 185 190

<210> 392

<211> 232

<212> PRT

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<213> Chlamydia pneumoniae

<400> 392

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Met Thr Lys His Gly Lys Arg Ile Arg Gly Ile Leu Lys Asn Tyr Asp
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Phe Ser Lys Ser Tyr Ser Leu Arg Glu Ala Ile Asp Ile Leu Lys Gln
      20              25              30

Cys Pro Pro Val Arg Phe Asp Gln Thr Val Asp Val Ser Ile Lys Leu
      35              40              45

Gly Ile Asp Pro Lys Lys Ser Asp Gln Gln Ile Arg Gly Ala Val Phe
      50              55              60

Leu Pro Asn Gly Thr Gly Lys Thr Leu Arg Ile Leu Val Phe Ala Ser
      65              70              75              80

Gly Asn Lys Val Lys Glu Ala Val Glu Ala Gly Ala Asp Phe Met Gly
      85              90              95

Ser Asp Asp Leu Val Glu Lys Ile Lys Ser Gly Trp Leu Glu Phe Asp
      100             105             110

Val Ala Val Ala Thr Pro Asp Met Met Arg Glu Val Gly Lys Leu Gly
      115             120             125

Lys Val Leu Gly Pro Arg Asn Leu Met Pro Thr Pro Lys Thr Gly Thr
      130             135             140

Val Thr Thr Asp Val Ala Lys Ala Ile Ser Glu Leu Arg Lys Gly Lys
      145             150             155             160

Ile Glu Phe Lys Ala Asp Arg Ala Gly Val Cys Asn Val Gly Val Gly
      165             170             175

Lys Leu Ser Phe Glu Ser Ser Gln Ile Lys Glu Asn Ile Glu Ala Leu
      180             185             190

Ser Ser Ala Leu Ile Lys Ala Lys Pro Pro Ala Ala Lys Gly Gln Tyr
      195             200             205

Leu Val Ser Phe Thr Ile Ser Ser Thr Met Gly Pro Gly Ile Ser Ile
      210             215             220

Asp Thr Arg Glu Leu Met Ala Ser
      225             230

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<210> 393

<211> 122

<212> PRT

<213> Chlamydia pneumoniae

<400> 393

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Met Pro Arg Ile Ile Gly Ile Asp Ile Pro Ala Lys Lys Lys Leu Lys
      5              10              15

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Ile Ser Leu Thr Tyr Ile Tyr Gly Ile Gly Ser Ala Arg Ser Asp Glu
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Ile Ile Lys Lys Leu Lys Leu Asp Pro Glu Ala Arg Ala Ser Glu Leu
35 40 45

Thr Glu Glu Glu Val Gly Arg Leu Asn Ser Leu Leu Gln Ser Glu Tyr
50 55 60

Thr Val Glu Gly Asp Leu Arg Arg Arg Val Gln Ser Asp Ile Lys Arg
65 70 75 80

Leu Ile Ala Ile His Ser Tyr Arg Gly Gln Arg His Arg Leu Ser Leu
85 90 95

Pro Val Arg Gly Gln Arg Thr Lys Thr Asn Ser Arg Thr Arg Lys Gly
100 105 110

Lys Arg Lys Thr Val Ala Gly Lys Lys Lys
115 120

<210> 394

<211> 1723

<212> PRT

<213> Chlamydia pneumoniae

<400> 394

Met Lys Trp Leu Pro Ala Thr Ala Val Phe Ala Ala Val Leu Pro Ala
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Leu Thr Ala Phe Gly Asp Pro Ala Ser Val Glu Ile Ser Thr Ser His
20 25 30

Thr Gly Ser Gly Asp Pro Thr Ser Asp Ala Ala Leu Thr Gly Phe Thr
35 40 45

Gln Ser Ser Thr Glu Thr Asp Gly Thr Thr Tyr Thr Ile Val Gly Asp
50 55 60

Ile Thr Phe Ser Thr Phe Thr Asn Ile Pro Val Pro Val Val Thr Pro
65 70 75 80

Asp Ala Asn Asp Ser Ser Ser Asn Ser Ser Lys Gly Gly Ser Ser Ser
85 90 95

Ser Gly Ala Thr Ser Leu Ile Arg Ser Ser Asn Leu His Ser Asp Phe
100 105 110

Asp Phe Thr Lys Asp Ser Val Leu Asp Leu Tyr His Leu Phe Phe Pro
115 120 125

Ser Ala Ser Asn Thr Leu Asn Pro Ala Leu Leu Ser Ser Ser Ser
130 135 140

Gly Gly Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Gly Ser Ala Ser

| | | | | | | | | | | | | | | | |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| 145 | | | | 150 | | | | | 155 | | | | | 160 | |
| Ala | Val | Val | Ala | Ala 165 | Asp | Pro | Lys | Gly | Gly 170 | Ala | Ala | Phe | Tyr | Ser 175 | Asn |
| Glu | Ala | Asn | Gly 180 | Thr | Leu | Thr | Phe | Thr 185 | Thr | Asp | Ser | Gly | Asn 190 | Pro | Gly |
| Ser | Leu | Thr 195 | Leu | Gln | Asn | Leu | Lys 200 | Met | Thr | Gly | Asp | Gly 205 | Ala | Ala | Ile |
| Tyr | Ser 210 | Lys | Gly | Pro | Leu | Val 215 | Phe | Thr | Gly | Leu | Lys 220 | Asn | Leu | Thr | Phe |
| Thr 225 | Gly | Asn | Glu | Ser | Gln 230 | Lys | Ser | Gly | Gly | Ala 235 | Ala | Tyr | Thr | Glu | Gly 240 |
| Ala | Leu | Thr | Thr | Gln 245 | Ala | Ile | Val | Glu | Ala 250 | Val | Thr | Phe | Thr | Gly 255 | Asn |
| Thr | Ser | Ala | Gly 260 | Gln | Gly | Gly | Ala | Ile 265 | Tyr | Val | Lys | Glu | Ala 270 | Thr | Leu |
| Phe | Asn 275 | Ala | Leu | Asp | Ser | Leu | Lys 280 | Phe | Glu | Lys | Asn | Thr 285 | Ser | Gly | Gln |
| Ala | Gly 290 | Gly | Gly | Ile | Tyr | Thr 295 | Glu | Ser | Thr | Leu | Thr 300 | Ile | Ser | Asn | Ile |
| Thr 305 | Lys | Ser | Ile | Glu | Phe 310 | Ile | Ser | Asn | Lys | Ala 315 | Ser | Val | Pro | Ala | Pro 320 |
| Ala | Pro | Glu | Pro | Thr 325 | Ser | Pro | Ala | Pro | Ser 330 | Ser | Leu | Ile | Asn | Ser 335 | Thr |
| Thr | Ile | Asp | Thr 340 | Ser | Thr | Leu | Gln | Thr 345 | Arg | Ala | Ala | Ser | Ala 350 | Thr | Pro |
| Ala | Val 355 | Ala | Pro | Val | Ala | Ala | Val 360 | Thr | Pro | Thr | Pro | Ile 365 | Ser | Thr | Gln |
| Glu | Thr 370 | Ala | Gly | Asn | Gly | Gly 375 | Ala | Ile | Tyr | Ala | Lys 380 | Gln | Gly | Ile | Ser |
| Ile 385 | Ser | Thr | Phe | Lys | Asp 390 | Leu | Thr | Phe | Lys | Ser 395 | Asn | Ser | Ala | Ser | Val 400 |
| Asp | Ala | Thr | Leu | Thr 405 | Val | Asp | Ser | Ser | Thr 410 | Ile | Gly | Glu | Ser | Gly 415 | Gly |
| Ala | Ile | Phe | Ala 420 | Ala | Asp | Ser | Ile | Gln | Ile | Gln | Gln | Cys | Thr 430 | Gly | Thr |
| Thr | Leu | Phe 435 | Ser | Gly | Asn | Thr | Ala 440 | Asn | Lys | Ser | Gly | Gly 445 | Gly | Ile | Tyr |
| Ala | Val | Gly | Gln | Val | Thr | Leu | Glu | Asp | Ile | Ala | Asn | Leu | Lys | Met | Thr |

| | | | | | | | | | | | | | | | |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 450 | | 455 | | 460 | | | | | | | | | | | |
| Asn 465 | Asn 465 | Thr 465 | Cys 465 | Lys 465 | Gly 470 | Glu 470 | Gly 470 | Gly 470 | Ala 470 | Ile 475 | Tyr 475 | Thr 475 | Lys 475 | Lys 475 | Ala 480 |
| Leu | Thr | Ile | Asn | Asn 485 | Gly 485 | Ala 485 | Ile 485 | Leu 485 | Thr 490 | Thr 490 | Phe 490 | Ser 490 | Gly 495 | Asn 495 | Thr 495 |
| Ser | Thr | Asp | Asn 500 | Gly 500 | Gly 500 | Ala 500 | Ile 500 | Phe 505 | Ala 505 | Val 505 | Gly 510 | Gly 510 | Ile 510 | Thr 510 | Leu 510 |
| Ser | Asp | Leu 515 | Val 515 | Glu 515 | Val 515 | Arg 515 | Phe 520 | Ser 520 | Lys 520 | Asn 520 | Lys 525 | Thr 525 | Gly 525 | Asn 525 | Tyr 525 |
| Ser | Ala 530 | Pro 530 | Ile 530 | Thr 530 | Lys 530 | Ala 535 | Ala 535 | Ser 535 | Asn 535 | Thr 535 | Ala 540 | Pro 540 | Val 540 | Val 540 | Ser 540 |
| Ser | Ser 545 | Thr 545 | Thr 545 | Ala 545 | Ala 545 | Ser 545 | Pro 545 | Ala 545 | Val 545 | Pro 555 | Ala 555 | Ala 555 | Ala 555 | Ala 555 | Ala 560 |
| Pro | Val | Thr | Asn | Ala 565 | Ala 565 | Lys 565 | Gly 565 | Gly 565 | Ala 570 | Leu 570 | Tyr 570 | Ser 570 | Thr 570 | Glu 575 | Gly 575 |
| Leu | Thr | Val | Ser 580 | Gly 580 | Ile 580 | Thr 580 | Ser 585 | Ile 585 | Leu 585 | Ser 585 | Phe 585 | Glu 585 | Asn 590 | Asn 590 | Glu 590 |
| Cys | Gln | Asn 595 | Gln 595 | Gly 595 | Gly 595 | Gly 595 | Ala 600 | Tyr 600 | Val 600 | Thr 600 | Lys 605 | Thr 605 | Phe 605 | Gln 605 | Cys 605 |
| Ser | Asp | Ser 610 | His 610 | Arg 610 | Leu 610 | Gln 615 | Phe 615 | Thr 615 | Ser 615 | Asn 615 | Lys 620 | Ala 620 | Ala 620 | Asp 620 | Glu 620 |
| Gly | Gly 625 | Gly 625 | Leu 625 | Tyr 625 | Cys 630 | Gly 630 | Asp 630 | Asp 630 | Val 630 | Thr 635 | Leu 635 | Thr 635 | Asn 635 | Leu 640 | Thr 640 |
| Gly | Lys | Thr | Leu | Phe 645 | Gln 645 | Glu 645 | Asn 645 | Ser 645 | Ser 650 | Glu 650 | Lys 650 | His 650 | Gly 655 | Gly 655 | Gly 655 |
| Leu | Ser | Leu 660 | Ala 660 | Ser 660 | Gly 660 | Lys 660 | Ser 665 | Leu 665 | Thr 665 | Met 665 | Thr 665 | Ser 665 | Leu 670 | Glu 670 | Ser 670 |
| Phe | Cys | Leu 675 | Asn 675 | Ala 675 | Asn 675 | Thr 675 | Ala 680 | Lys 680 | Glu 680 | Asn 680 | Gly 685 | Gly 685 | Gly 685 | Ala 685 | Asn 685 |
| Val | Pro | Glu 690 | Asn 690 | Ile 690 | Val 690 | Leu 695 | Thr 695 | Phe 695 | Thr 695 | Tyr 695 | Thr 700 | Pro 700 | Thr 700 | Pro 700 | Asn 700 |
| Glu | Pro | Ala 705 | Pro 705 | Val 705 | Gln 710 | Gln 710 | Pro 710 | Val 710 | Tyr 715 | Gly 715 | Glu 715 | Ala 715 | Leu 715 | Val 715 | Thr 720 |
| Gly | Asn | Thr | Ala | Thr 725 | Lys 725 | Ser 725 | Gly 725 | Gly 725 | Gly 730 | Ile 730 | Tyr 730 | Thr 730 | Lys 730 | Asn 735 | Ala 735 |
| Ala | Phe | Ser | Asn 740 | Leu 740 | Ser 740 | Ser 740 | Val 740 | Thr 745 | Phe 745 | Asp 745 | Gln 745 | Asn 745 | Thr 750 | Ser 750 | Ser 750 |
| Glu | Asn | Gly | Gly | Ala | Leu | Leu | Thr | Gln | Lys | Ala | Ala | Asp | Lys | Thr | Asp |

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| | | |
|---|------|-----------|
| 755 | 760 | 765 |
| Cys Ser Phe Thr Tyr Ile Thr Asn Val Asn Ile Thr Asn Asn Thr Ala | | |
| 770 | 775 | 780 |
| Thr Gly Asn Gly Gly Gly Ile Ala Gly Gly Lys Ala His Phe Asp Arg | | |
| 785 | 790 | 795 800 |
| Ile Asp Asn Leu Thr Val Gln Ser Asn Gln Ala Lys Lys Gly Gly Gly | | |
| 805 | 810 | 815 |
| Val Tyr Leu Glu Asp Ala Leu Ile Leu Glu Lys Val Ile Thr Gly Ser | | |
| 820 | 825 | 830 |
| Val Ser Gln Asn Thr Ala Thr Glu Ser Gly Gly Gly Ile Tyr Ala Lys | | |
| 835 | 840 | 845 |
| Asp Ile Gln Leu Gln Ala Leu Pro Gly Ser Phe Thr Ile Thr Asp Asn | | |
| 850 | 855 | 860 |
| Lys Val Glu Thr Ser Leu Thr Thr Ser Thr Asn Leu Tyr Gly Gly Gly | | |
| 865 | 870 | 875 880 |
| Ile Tyr Ser Ser Gly Ala Val Thr Leu Thr Asn Ile Ser Gly Thr Phe | | |
| 885 | 890 | 895 |
| Gly Ile Thr Gly Asn Ser Val Ile Asn Thr Ala Thr Ser Gln Asp Ala | | |
| 900 | 905 | 910 |
| Asp Ile Gln Gly Gly Gly Ile Tyr Ala Thr Thr Ser Leu Ser Ile Asn | | |
| 915 | 920 | 925 |
| Gln Cys Asn Thr Pro Ile Leu Phe Ser Asn Asn Ser Ala Ala Thr Lys | | |
| 930 | 935 | 940 |
| Lys Thr Ser Thr Thr Lys Gln Ile Ala Gly Gly Ala Ile Phe Ser Ala | | |
| 945 | 950 | 955 960 |
| Ala Val Thr Ile Glu Asn Asn Ser Gln Pro Ile Ile Phe Leu Asn Asn | | |
| 965 | 970 | 975 |
| Ser Ala Lys Ser Glu Ala Thr Thr Ala Ala Thr Ala Gly Asn Lys Asp | | |
| 980 | 985 | 990 |
| Ser Cys Gly Gly Ala Ile Ala Ala Asn Ser Val Thr Leu Thr Asn Asn | | |
| 995 | 1000 | 1005 |
| Pro Glu Ile Thr Phe Lys Gly Asn Tyr Ala Glu Thr Gly Gly Ala Ile | | |
| 1010 | 1015 | 1020 |
| Gly Cys Ile Asp Leu Thr Asn Gly Ser Pro Pro Arg Lys Val Ser Ile | | |
| 1025 | 1030 | 1035 1040 |
| Ala Asp Asn Gly Ser Val Leu Phe Gln Asp Asn Ser Ala Leu Asn Arg | | |
| 1045 | 1050 | 1055 |
| Gly Gly Ala Ile Tyr Gly Glu Thr Ile Asp Ile Ser Arg Thr Gly Ala | | |

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| 1060 | | | | | 1065 | | | | | 1070 | | | | | |
|------|-----|------|------|------|------|-----|------|------|------|------|-----|------|------|------|------|
| Thr | Phe | Ile | Gly | Asn | Ser | Ser | Lys | His | Asp | Gly | Ser | Ala | Ile | Cys | Cys |
| | | 1075 | | | | | 1080 | | | | | 1085 | | | |
| Ser | Thr | Ala | Leu | Thr | Leu | Ala | Pro | Asn | Ser | Gln | Leu | Ile | Phe | Glu | Asn |
| | | 1090 | | | | | 1095 | | | | | 1100 | | | |
| Asn | Lys | Val | Thr | Glu | Thr | Thr | Ala | Thr | Thr | Lys | Ala | Ser | Ile | Asn | Asn |
| | | 1105 | | | | | 1110 | | | | | 1115 | | | 1120 |
| Leu | Gly | Ala | Ala | Ile | Tyr | Gly | Asn | Asn | Glu | Thr | Ser | Asp | Val | Thr | Ile |
| | | | | 1125 | | | | | 1130 | | | | | 1135 | |
| Ser | Leu | Ser | Ala | Glu | Asn | Gly | Ser | Ile | Phe | Phe | Lys | Asn | Asn | Leu | Cys |
| | | | 1140 | | | | | 1145 | | | | | 1150 | | |
| Thr | Ala | Thr | Asn | Lys | Tyr | Cys | Ser | Ile | Ala | Gly | Asn | Val | Lys | Phe | Thr |
| | | | 1155 | | | | | 1160 | | | | | 1165 | | |
| Ala | Ile | Glu | Ala | Ser | Ala | Gly | Lys | Ala | Ile | Ser | Phe | Tyr | Asp | Ala | Val |
| | | 1170 | | | | | 1175 | | | | | | 1180 | | |
| Asn | Val | Ser | Thr | Lys | Glu | Thr | Asn | Ala | Gln | Glu | Leu | Lys | Leu | Asn | Glu |
| | | | | 1185 | | | 1190 | | | | | 1195 | | | 1200 |
| Lys | Ala | Thr | Ser | Thr | Gly | Thr | Ile | Leu | Phe | Ser | Gly | Glu | Leu | His | Glu |
| | | | | 1205 | | | | | 1210 | | | | | 1215 | |
| Asn | Lys | Ser | Tyr | Ile | Pro | Gln | Lys | Val | Thr | Phe | Ala | His | Gly | Asn | Leu |
| | | | 1220 | | | | | 1225 | | | | | 1230 | | |
| Ile | Leu | Gly | Lys | Asn | Ala | Glu | Leu | Ser | Val | Val | Ser | Phe | Thr | Gln | Ser |
| | | 1235 | | | | | 1240 | | | | | | 1245 | | |
| Pro | Gly | Thr | Thr | Ile | Thr | Met | Gly | Pro | Gly | Ser | Val | Leu | Ser | Asn | His |
| | | 1250 | | | | | 1255 | | | | | 1260 | | | |
| Ser | Lys | Glu | Ala | Gly | Gly | Ile | Ala | Ile | Asn | Asn | Val | Ile | Ile | Asp | Phe |
| | | 1265 | | | | | 1270 | | | | | 1275 | | | 1280 |
| Ser | Glu | Ile | Val | Pro | Thr | Lys | Asp | Asn | Ala | Thr | Val | Ala | Pro | Pro | Thr |
| | | | 1285 | | | | | | 1290 | | | | | 1295 | |
| Leu | Lys | Leu | Val | Ser | Arg | Thr | Asn | Ala | Asp | Ser | Lys | Asp | Lys | Ile | Asp |
| | | 1300 | | | | | | 1305 | | | | | 1310 | | |
| Ile | Thr | Gly | Thr | Val | Thr | Leu | Leu | Asp | Pro | Asn | Gly | Asn | Leu | Tyr | Gln |
| | | 1315 | | | | | 1320 | | | | | 1325 | | | |
| Asn | Ser | Tyr | Leu | Gly | Glu | Asp | Arg | Asp | Ile | Thr | Leu | Phe | Asn | Ile | Asp |
| | | 1330 | | | | | 1335 | | | | | 1340 | | | |
| Asn | Ser | Ala | Ser | Gly | Ala | Val | Thr | Ala | Thr | Asn | Val | Thr | Leu | Gln | Gly |
| | | 1345 | | | | | 1350 | | | | | 1355 | | | 1360 |
| Asn | Leu | Gly | Ala | Lys | Lys | Gly | Tyr | Leu | Gly | Thr | Trp | Asn | Leu | Asp | Pro |

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| | | |
|---|------|------|
| 1365 | 1370 | 1375 |
| Asn Ser Ser Gly Ser Lys Ile Ile Leu Lys Trp Thr Phe Asp Lys Tyr | | |
| 1380 | 1385 | 1390 |
| Leu Arg Trp Pro Tyr Ile Pro Arg Asp Asn His Phe Tyr Ile Asn Ser | | |
| 1395 | 1400 | 1405 |
| Ile Trp Gly Ala Gln Asn Ser Leu Val Thr Val Lys Gln Gly Ile Leu | | |
| 1410 | 1415 | 1420 |
| Gly Asn Met Leu Asn Asn Ala Arg Phe Glu Asp Pro Ala Phe Asn Asn | | |
| 1425 | 1430 | 1435 |
| Phe Trp Ala Ser Ala Ile Gly Ser Phe Leu Arg Lys Glu Val Ser Arg | | |
| 1445 | 1450 | 1455 |
| Asn Ser Asp Ser Phe Thr Tyr His Gly Arg Gly Tyr Thr Ala Ala Val | | |
| 1460 | 1465 | 1470 |
| Asp Ala Lys Pro Arg Gln Glu Phe Ile Leu Gly Ala Ala Phe Ser Gln | | |
| 1475 | 1480 | 1485 |
| Val Phe Gly His Ala Glu Ser Glu Tyr His Leu Asp Asn Tyr Lys His | | |
| 1490 | 1495 | 1500 |
| Lys Gly Ser Gly His Ser Thr Gln Ala Ser Leu Tyr Ala Gly Asn Ile | | |
| 1505 | 1510 | 1515 |
| Phe Tyr Phe Pro Ala Ile Arg Ser Arg Pro Ile Leu Phe Gln Gly Val | | |
| 1525 | 1530 | 1535 |
| Ala Thr Tyr Gly Tyr Met Gln His Asp Thr Thr Thr Tyr Tyr Pro Ser | | |
| 1540 | 1545 | 1550 |
| Ile Glu Glu Lys Asn Met Ala Asn Trp Asp Ser Ile Ala Trp Leu Phe | | |
| 1555 | 1560 | 1565 |
| Asp Leu Arg Phe Ser Val Asp Leu Lys Glu Pro Gln Pro His Ser Thr | | |
| 1570 | 1575 | 1580 |
| Ala Arg Leu Thr Phe Tyr Thr Glu Ala Glu Tyr Thr Arg Ile Arg Gln | | |
| 1585 | 1590 | 1595 |
| Glu Lys Phe Thr Glu Leu Asp Tyr Asp Pro Arg Ser Phe Ser Ala Cys | | |
| 1605 | 1610 | 1615 |
| Ser Tyr Gly Asn Leu Ala Ile Pro Thr Gly Phe Ser Val Asp Gly Ala | | |
| 1620 | 1625 | 1630 |
| Leu Ala Trp Arg Glu Ile Ile Leu Tyr Asn Lys Val Ser Ala Ala Tyr | | |
| 1635 | 1640 | 1645 |
| Leu Pro Val Ile Leu Arg Asn Asn Pro Lys Ala Thr Tyr Glu Val Leu | | |
| 1650 | 1655 | 1660 |
| Ser Thr Lys Glu Lys Gly Asn Val Val Asn Val Leu Pro Thr Arg Asn | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 305 | | | | | 310 | | | | | 315 | | | | 320 | |
| Ala | Pro | Glu | Pro | Thr | Ser | Pro | Ala | Pro | Ser | Ser | Leu | Ile | Asn | Ser | Thr |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Thr | Ile | Asp | Thr | Ser | Thr | Leu | Gln | Thr | Arg | Ala | Ala | Ser | Ala | Thr | Pro |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Ala | Val | Ala | Pro | Val | Ala | Ala | Val | Thr | Pro | Thr | Pro | Ile | Ser | Thr | Gln |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Glu | Thr | Ala | Gly | Asn | Gly | Gly | Ala | Ile | Tyr | Ala | Lys | Gln | Gly | Ile | Ser |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Ile | Ser | Thr | Phe | Lys | Asp | Leu | Thr | Phe | Lys | Ser | Asn | Ser | Ala | Ser | Val |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Asp | Ala | Thr | Leu | Thr | Val | Asp | Ser | Ser | Thr | Ile | Gly | Glu | Ser | Gly | Gly |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Ala | Ile | Phe | Ala | Ala | Asp | Ser | Ile | Gln | Ile | Gln | Gln | Cys | Thr | Gly | Thr |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Thr | Leu | Phe | Ser | Gly | Asn | Thr | Ala | Asn | Lys | Ser | Gly | Gly | Gly | Ile | Tyr |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Ala | Val | Gly | Gln | Val | Thr | Leu | Glu | Asp | Ile | Ala | Asn | Leu | Lys | Met | Thr |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Asn | Asn | Thr | Cys | Lys | Gly | Glu | Gly | Gly | Ala | Ile | Tyr | Thr | Lys | Lys | Ala |
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| Leu | Thr | Ile | Asn | Asn | Gly | Ala | Ile | Leu | Thr | Thr | Phe | Ser | Gly | Asn | Thr |
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| | | | 500 | | | | | 505 | | | | | 510 | | |
| Ser | Asp | Leu | Val | Glu | Val | Arg | Phe | Ser | Lys | Asn | Lys | Thr | Gly | Asn | Tyr |
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| Ser | Ala | Pro | Ile | Thr | Lys | Ala | Ala | Ser | Asn | Thr | Ala | Pro | Val | Val | Ser |
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| Ser | Ser | Thr | Thr | Ala | Ala | Ser | Pro | Ala | Val | Pro | Ala | Ala | Ala | Ala | Ala |
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| Pro | Val | Thr | Asn | Ala | Ala | Lys | Gly | Gly | Ala | Leu | Tyr | Ser | Thr | Glu | Gly |
| | | | | 565 | | | | | 570 | | | | | 575 | |
| Leu | Thr | Val | Ser | Gly | Ile | Thr | Ser | Ile | Leu | Ser | Phe | Glu | Asn | Asn | Glu |
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| Cys | Gln | Asn | Gln | Gly | Gly | Gly | Ala | Tyr | Val | Thr | Lys | Thr | Phe | Gln | Cys |
| | | 595 | | | | | 600 | | | | | 605 | | | |
| Ser | Asp | Ser | His | Arg | Leu | Gln | Phe | Thr | Ser | Asn | Lys | Ala | Ala | Asp | Glu |
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| Gly | Gly | Gly | Leu | Tyr | Cys | Gly | Asp | Asp | Val | Thr | Leu | Thr | Asn | Leu | Thr |
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| Gly | Lys | Thr | Leu | Phe | Gln | Glu | Asn | Ser | Ser | Glu | Lys | His | Gly | Gly | Gly |
| | | | | 645 | | | | | 650 | | | | | 655 | |
| Leu | Ser | Leu | Ala | Ser | Gly | Lys | Ser | Leu | Thr | Met | Thr | Ser | Leu | Glu | Ser |
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| Phe | Cys | Leu | Asn | Ala | Asn | Thr | Ala | Lys | Glu | Asn | Gly | Gly | Gly | Ala | Asn |
| | | 675 | | | | | 680 | | | | | 685 | | | |
| Val | Pro | Glu | Asn | Ile | Val | Leu | Thr | Phe | Thr | Tyr | Thr | Pro | Thr | Pro | Asn |
| | 690 | | | | | 695 | | | | | 700 | | | | |
| Glu | Pro | Ala | Pro | Val | Gln | Gln | Pro | Val | Tyr | Gly | Glu | Ala | Leu | Val | Thr |
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| Gly | Asn | Thr | Ala | Thr | Lys | Ser | Gly | Gly | Gly | Ile | Tyr | Thr | Lys | Asn | Ala |
| | | | | 725 | | | | | 730 | | | | | 735 | |
| Ala | Phe | Ser | Asn | Leu | Ser | Ser | Val | Thr | Phe | Asp | Gln | Asn | Thr | Ser | Ser |
| | | | 740 | | | | | 745 | | | | | 750 | | |
| Glu | Asn | Gly | Gly | Ala | Leu | Leu | Thr | Gln | Lys | Ala | Ala | Asp | Lys | Thr | Asp |
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0984132 042301

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 Val Tyr Leu Glu Asp Ala Leu Ile Leu Glu Lys Val Ile Thr Gly Ser
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 Val Ser Gln Asn Thr Ala Thr Glu Ser Gly Gly Gly Ile Tyr Ala Lys
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 Gly Ile Thr Gly Asn Ser Val Ile Asn Thr Ala Thr Ser Gln Asp Ala
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 Asp Ile Gln Gly Gly Gly Ile Tyr Ala Thr Thr Ser Leu Ser Ile Asn
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 Ser Cys Gly Gly Ala Ile Ala Ala Asn Ser Val Thr Leu Thr Asn Asn
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 Ser Thr Ala Leu Thr Leu Ala Pro Asn Ser Gln Leu Ile Phe Glu Asn
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 Thr Ala Thr Asn Lys Tyr Cys Ser Ile Ala Gly Asn Val Lys Phe Thr
 1155 1160 1165
 Ala Ile Glu Ala Ser Ala Gly Lys Ala Ile Ser Phe Tyr Asp Ala Val
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 Asn Val Ser Thr Lys Glu Thr Asn Ala Gln Glu Leu Lys Leu Asn Glu
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 Lys Ala Thr Ser Thr Gly Thr Ile Leu Phe Ser Gly Glu Leu His Glu
 1205 1210 1215
 Asn Lys Ser Tyr Ile Pro Gln Lys Val Thr Phe Ala His Gly Asn Leu

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| | | | | | | | | | | | | | | | | | | |
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| Ile | Leu | Gly | Lys | Asn | Ala | Glu | Leu | Ser | Val | Val | Ser | Phe | Thr | Gln | Ser | 1220 | 1225 | 1230 |
| Pro | Gly | Thr | Thr | Ile | Thr | Met | Gly | Pro | Gly | Ser | Val | Leu | Ser | Asn | His | 1235 | 1240 | 1245 |
| Ser | Lys | Glu | Ala | Gly | Gly | Ile | Ala | Ile | Asn | Asn | Val | Ile | Ile | Asp | Phe | 1250 | 1255 | 1260 |
| Ser | Glu | Ile | Val | Pro | Thr | Lys | Asp | Asn | Ala | Thr | Val | Ala | Pro | Pro | Thr | 1265 | 1270 | 1275 |
| Leu | Lys | Leu | Val | Ser | Arg | Thr | Asn | Ala | Asp | Ser | Lys | Asp | Lys | Ile | Asp | 1280 | 1285 | 1290 |
| Ile | Thr | Gly | Thr | Val | Thr | Leu | Leu | Asp | Pro | Asn | Gly | Asn | Leu | Tyr | Gln | 1295 | 1300 | 1305 |
| Asn | Ser | Tyr | Leu | Gly | Glu | Asp | Arg | Asp | Ile | Thr | Leu | Phe | Asn | Ile | Asp | 1310 | 1315 | 1320 |
| Asn | Ser | Ala | Ser | Gly | Ala | Val | Thr | Ala | Thr | Asn | Val | Thr | Leu | Gln | Gly | 1325 | 1330 | 1335 |
| Asn | Leu | Gly | Ala | Lys | Lys | Gly | Tyr | Leu | Gly | Thr | Trp | Asn | Leu | Asp | Pro | 1340 | 1345 | 1350 |
| Asn | Ser | Ser | Gly | Ser | Lys | Ile | Ile | Leu | Lys | Trp | Thr | Phe | Asp | Lys | Tyr | 1355 | 1360 | 1365 |
| Leu | Arg | Trp | Pro | Tyr | Ile | Pro | Arg | Asp | Asn | His | Phe | Tyr | Ile | Asn | Ser | 1370 | 1375 | 1380 |
| Ile | Trp | Gly | Ala | Gln | Asn | Ser | Leu | Val | Thr | Val | Lys | Gln | Gly | Ile | Leu | 1385 | 1390 | 1395 |
| Gly | Asn | Met | Leu | Asn | Asn | Ala | Arg | Phe | Glu | Asp | Pro | Ala | Phe | Asn | Asn | 1400 | 1405 | 1410 |
| Phe | Trp | Ala | Ser | Ala | Ile | Gly | Ser | Phe | Leu | Arg | Lys | Glu | Val | Ser | Arg | 1415 | 1420 | 1425 |
| Asn | Ser | Asp | Ser | Phe | Thr | Tyr | His | Gly | Arg | Gly | Tyr | Thr | Ala | Ala | Val | 1430 | 1435 | 1440 |
| Asp | Ala | Lys | Pro | Arg | Gln | Glu | Phe | Ile | Leu | Gly | Ala | Ala | Phe | Ser | Gln | 1445 | 1450 | 1455 |
| Val | Phe | Gly | His | Ala | Glu | Ser | Glu | Tyr | His | Leu | Asp | Asn | Tyr | Lys | His | 1460 | 1465 | 1470 |
| Lys | Gly | Ser | Gly | His | Ser | Thr | Gln | Ala | Ser | Leu | Tyr | Ala | Gly | Asn | Ile | 1475 | 1480 | 1485 |
| Phe | Tyr | Phe | Pro | Ala | Ile | Arg | Ser | Arg | Pro | Ile | Leu | Phe | Gln | Gly | Val | 1490 | 1495 | 1500 |
| Ala | Thr | Tyr | Gly | Tyr | Met | Gln | His | Asp | Thr | Thr | Thr | Tyr | Tyr | Pro | Ser | 1505 | 1510 | 1515 |
| Ile | Glu | Glu | Lys | Asn | Met | Ala | Asn | Trp | Asp | Ser | Ile | Ala | Trp | Leu | Phe | 1520 | 1525 | 1530 |
| Asp | Leu | Arg | Phe | Ser | Val | Asp | Leu | Lys | Glu | Pro | Gln | Pro | His | Ser | Thr | 1535 | 1540 | 1545 |
| Ala | Arg | Leu | Thr | Phe | Tyr | Thr | Glu | Ala | Glu | Tyr | Thr | Arg | Ile | Arg | Gln | 1550 | 1555 | 1560 |
| Glu | Lys | Phe | Thr | Glu | Leu | Asp | Tyr | Asp | Pro | Arg | Ser | Phe | Ser | Ala | Cys | 1565 | 1570 | 1575 |
| Ser | Tyr | Gly | Asn | Leu | Ala | Ile | Pro | Thr | Gly | Phe | Ser | Val | Asp | Gly | Ala | 1580 | 1585 | 1590 |
| Leu | Ala | Trp | Arg | Glu | Ile | Ile | Leu | Tyr | Asn | Lys | Val | Ser | Ala | Ala | Tyr | 1595 | 1600 | 1605 |
| Leu | Pro | Val | Ile | Leu | Arg | Asn | Asn | Pro | Lys | Ala | Thr | Tyr | Glu | Val | Leu | 1610 | 1615 | 1620 |
| Ser | Thr | Lys | Glu | Lys | Gly | Asn | Val | Val | Asn | Val | Leu | Pro | Thr | Arg | Asn | 1625 | 1630 | 1635 |
| | | | | | | | | | | | | | | | | 1640 | 1645 | 1650 |
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| Met | Leu | Lys | Cys | Pro 5 | Glu | Arg | Val | Ser | Val 10 | Lys | Lys | Lys | Glu | Asp 15 | Ile |
| Pro | Asp | Leu | Pro 20 | Asn | Leu | Ile | Glu | Ile 25 | Gln | Ile | Lys | Ser | Tyr 30 | Lys | Gln |
| Phe | Leu | Gln 35 | Ile | Gly | Lys | Leu | Ala 40 | Glu | Glu | Arg | Glu | Asn 45 | Ile | Gly | Leu |
| Glu | Glu 50 | Val | Phe | Arg | Glu | Ile 55 | Phe | Pro | Ile | Lys | Ser 60 | Tyr | Asn | Glu | Ala |
| Thr 65 | Val | Leu | Glu | Tyr | Leu 70 | Ser | Tyr | Asn | Leu | Gly 75 | Val | Pro | Lys | Tyr | Ser 80 |
| Pro | Glu | Glu | Cys | Ile 85 | Arg | Arg | Gly | Ile | Thr 90 | Tyr | Ser | Val | Thr | Leu 95 | Lys |
| Val | Arg | Phe | Arg 100 | Leu | Thr | Asp | Glu | Thr 105 | Gly | Ile | Lys | Glu | Glu 110 | Glu | Val |
| Tyr | Met | Gly 115 | Thr | Ile | Pro | Leu | Met 120 | Thr | Asp | Lys | Gly | Thr 125 | Phe | Ile | Ile |
| Asn | Gly 130 | Ala | Glu | Arg | Val | Val 135 | Val | Ser | Gln | Val | His 140 | Arg | Ser | Pro | Gly |
| Ile 145 | Asn | Phe | Glu | Gln | Glu 150 | Lys | His | Ser | Lys | Gly 155 | Asn | Ile | Leu | Phe | Ser 160 |
| Phe | Arg | Ile | Ile | Pro 165 | Tyr | Arg | Gly | Ser | Trp 170 | Leu | Glu | Ala | Ile | Phe 175 | Asp |
| Ile | Asn | Asp | Leu 180 | Ile | Tyr | Ile | His 185 | Ile | Asp | Arg | Lys | Lys | Arg 190 | Arg | Arg |
| Lys | Ile | Leu 195 | Ala | Ile | Thr | Phe | Ile 200 | Arg | Ala | Leu | Gly | Tyr 205 | Ser | Ser | Asp |
| Ala | Asp 210 | Ile | Ile | Glu | Glu | Phe 215 | Phe | Thr | Ile | Gly | Glu 220 | Ser | Ser | Leu | Arg |
| Ser | Glu | Lys | Asp | Phe | Ala | Leu | Leu | Val | Gly | Arg | Ile | Leu | Ala | Asp | Asn |

| | | | | | | |
|---|-----|-----|-----|-----|-----|-----|
| 225 | | 230 | | 235 | | 240 |
| Ile Ile Asp Glu Ala Ser Ser Leu Val Tyr Gly Lys Ala Gly Glu Lys | | | | | | |
| | 245 | | | 250 | | 255 |
| Leu Ser Thr Ala Met Leu Lys Arg Met Leu Asp Ala Gly Ile Ala Ser | | | | | | |
| | 260 | | 265 | | 270 | |
| Val Lys Ile Ala Val Asp Ala Asp Glu Asn His Pro Ile Ile Lys Met | | | 280 | | 285 | |
| | 275 | | | | | |
| Leu Ala Lys Asp Pro Thr Asp Ser Tyr Glu Ala Ala Leu Lys Asp Phe | | | 295 | | 300 | |
| | 290 | | | | | |
| Tyr Arg Arg Leu Arg Pro Gly Glu Pro Ala Thr Leu Ala Asn Ala Arg | | | 310 | | 315 | 320 |
| | 305 | | | | | |
| Ser Thr Ile Met Arg Leu Phe Phe Asp Pro Lys Arg Tyr Asn Leu Gly | | | 325 | | 330 | 335 |
| | | | | | | |
| Arg Val Gly Arg Tyr Lys Leu Asn Arg Lys Leu Gly Phe Ser Ile Asp | | | 340 | | 345 | 350 |
| | | | | | | |
| Asp Glu Ala Leu Ser Gln Val Thr Leu Arg Lys Glu Asp Val Ile Gly | | | 355 | | 360 | 365 |
| | | | | | | |
| Ala Leu Lys Tyr Leu Ile Arg Leu Lys Met Gly Asp Glu Lys Ala Cys | | | 370 | | 375 | 380 |
| | | | | | | |
| Val Asp Asp Ile Asp His Leu Ala Asn Arg Arg Val Arg Ser Val Gly | | | 385 | | 390 | 395 |
| | | | | | | |
| Glu Leu Ile Gln Asn Gln Cys Arg Ser Gly Leu Ala Arg Met Glu Lys | | | 405 | | 410 | 415 |
| | | | | | | |
| Ile Val Arg Glu Arg Met Asn Leu Phe Asp Phe Ser Ser Asp Thr Leu | | | 420 | | 425 | 430 |
| | | | | | | |
| Thr Pro Gly Lys Val Val Ser Ala Lys Gly Leu Ala Ser Val Leu Lys | | | 435 | | 440 | 445 |
| | | | | | | |
| Asp Phe Phe Gly Arg Ser Gln Leu Ser Gln Phe Met Asp Gln Thr Asn | | | 450 | | 455 | 460 |
| | | | | | | |
| Pro Val Ala Glu Leu Thr His Lys Arg Arg Leu Ser Ala Leu Gly Pro | | | 465 | | 470 | 475 |
| | | | | | | |
| Gly Gly Leu Asn Arg Glu Arg Ala Gly Phe Glu Val Arg Asp Val His | | | 485 | | 490 | 495 |
| | | | | | | |
| Ala Ser His Tyr Gly Arg Ile Cys Pro Ile Glu Thr Pro Glu Gly Pro | | | 500 | | 505 | 510 |
| | | | | | | |
| Asn Ile Gly Leu Ile Thr Ser Leu Ser Ser Phe Ala Lys Ile Asn Glu | | | 515 | | 520 | 525 |
| | | | | | | |
| Phe Gly Phe Ile Glu Thr Pro Tyr Arg Ile Val Arg Asp Gly Ile Val | | | | | | |

| | | |
|---|-----|-----|
| 530 | 535 | 540 |
| Thr Asp Glu Ile Glu Tyr Met Thr Ala Asp Val Glu Glu Glu Cys Val | | |
| 545 | 550 | 555 |
| Ile Ala Gln Ala Ser Ala Ser Leu Asp Glu Tyr Asn Met Phe Thr Glu | | |
| | 565 | 570 |
| Pro Val Cys Trp Val Arg Tyr Ala Gly Glu Ala Phe Glu Ala Asp Thr | | |
| | 580 | 585 |
| Ser Thr Val Thr His Met Asp Val Ser Pro Lys Gln Leu Val Ser Ile | | |
| | 595 | 600 |
| Val Thr Gly Leu Ile Pro Phe Leu Glu His Asp Asp Ala Asn Arg Ala | | |
| | 610 | 615 |
| Leu Met Gly Ser Asn Met Gln Arg Gln Ala Val Pro Leu Leu Lys Thr | | |
| | 625 | 630 |
| Glu Ala Pro Val Val Gly Thr Gly Leu Glu Cys Arg Ala Ala Lys Asp | | |
| | 645 | 650 |
| Ser Gly Ala Ile Val Val Ala Glu Glu Asp Gly Val Val Asp Phe Val | | |
| | 660 | 665 |
| Asp Gly Tyr Lys Val Val Val Ala Ala Lys His Asn Pro Thr Ile Lys | | |
| | 675 | 680 |
| Arg Thr Tyr His Leu Lys Lys Phe Leu Arg Ser Asn Ser Gly Thr Cys | | |
| | 690 | 695 |
| Ile Asn Gln Gln Pro Leu Cys Ala Val Gly Asp Val Ile Thr Lys Gly | | |
| | 705 | 710 |
| Asp Val Ile Ala Asp Gly Pro Ala Thr Asp Arg Gly Glu Leu Ala Leu | | |
| | 725 | 730 |
| Gly Lys Asn Val Leu Val Ala Phe Met Pro Trp Tyr Gly Tyr Asn Phe | | |
| | 740 | 745 |
| Glu Asp Ala Ile Ile Ile Ser Glu Lys Leu Ile Arg Glu Asp Ala Tyr | | |
| | 755 | 760 |
| Thr Ser Ile Tyr Ile Glu Glu Phe Glu Leu Thr Ala Arg Asp Thr Lys | | |
| | 770 | 775 |
| Leu Gly Lys Glu Glu Ile Thr Arg Asp Ile Pro Asn Val Ser Asp Glu | | |
| | 785 | 790 |
| Val Leu Ala Asn Leu Gly Glu Asp Gly Ile Ile Arg Ile Gly Ala Glu | | |
| | 805 | 810 |
| Val Lys Pro Gly Asp Ile Leu Val Gly Lys Ile Thr Pro Lys Ser Glu | | |
| | 820 | 825 |
| Thr Glu Leu Ala Pro Glu Glu Arg Leu Leu Arg Ala Ile Phe Gly Glu | | |

| 835 | | | | | 840 | | | | | 845 | | | | | |
|------|------|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lys | Ala | Ala | Asp | Val | Lys | Asp | Ala | Ser | Leu | Thr | Val | Pro | Pro | Gly | Thr |
| 850 | | | | | 855 | | | | | 860 | | | | | |
| Glu | Gly | Val | Val | Met | Asp | Val | Lys | Val | Phe | Ser | Arg | Lys | Asp | Arg | Leu |
| 865 | | | | | 870 | | | | | 875 | | | | | 880 |
| Ser | Lys | Ser | Asp | Asp | Glu | Leu | Val | Glu | Glu | Ala | Val | His | Leu | Lys | Asp |
| | | | | 885 | | | | | 890 | | | | | 895 | |
| Leu | Gln | Lys | Gly | Tyr | Lys | Asn | Gln | Val | Ala | Thr | Leu | Lys | Thr | Glu | Tyr |
| | | | 900 | | | | | 905 | | | | | 910 | | |
| Arg | Glu | Lys | Leu | Gly | Ala | Leu | Leu | Leu | Asn | Glu | Lys | Ala | Pro | Ala | Ala |
| | | 915 | | | | | 920 | | | | | 925 | | | |
| Ile | Ile | His | Arg | Arg | Thr | Ala | Glu | Ile | Val | Val | His | Glu | Gly | Leu | Leu |
| | 930 | | | | | 935 | | | | | 940 | | | | |
| Phe | Asp | Gln | Glu | Thr | Ile | Glu | Arg | Ile | Glu | Gln | Glu | Asp | Leu | Val | Asp |
| 945 | | | | | 950 | | | | | 955 | | | | | 960 |
| Leu | Leu | Met | Pro | Asn | Cys | Glu | Met | Tyr | Glu | Val | Leu | Lys | Gly | Leu | Leu |
| | | | | 965 | | | | | 970 | | | | | 975 | |
| Ser | Asp | Tyr | Glu | Thr | Ala | Leu | Gln | Arg | Leu | Glu | Ile | Asn | Tyr | Lys | Thr |
| | | | 980 | | | | | 985 | | | | | 990 | | |
| Glu | Val | Glu | His | Ile | Arg | Glu | Gly | Asp | Ala | Asp | Leu | Asp | His | Gly | Val |
| | | 995 | | | | | 1000 | | | | | 1005 | | | |
| Ile | Arg | Gln | Val | Lys | Val | Tyr | Val | Ala | Ser | Lys | Arg | Lys | Leu | Gln | Val |
| | 1010 | | | | | 1015 | | | | | 1020 | | | | |
| Gly | Asp | Lys | Met | Ala | Gly | Arg | His | Gly | Asn | Lys | Gly | Val | Val | Ser | Lys |
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| Ile | Val | Pro | Glu | Ala | Asp | Met | Pro | Tyr | Leu | Ser | Asn | Gly | Glu | Thr | Val |
| | | | | 1045 | | | | | 1050 | | | | | 1055 | |
| Gln | Met | Ile | Leu | Asn | Pro | Leu | Gly | Val | Pro | Ser | Arg | Met | Asn | Leu | Gly |
| | | | 1060 | | | | | 1065 | | | | | 1070 | | |
| Gln | Val | Leu | Glu | Thr | His | Leu | Gly | Tyr | Ala | Ala | Lys | Thr | Ala | Gly | Ile |
| | | | 1075 | | | | 1080 | | | | | 1085 | | | |
| Tyr | Val | Lys | Thr | Pro | Val | Phe | Glu | Gly | Phe | Pro | Glu | Gln | Arg | Ile | Trp |
| | 1090 | | | | | 1095 | | | | | 1100 | | | | |
| Asp | Met | Met | Ile | Glu | Gln | Gly | Leu | Pro | Glu | Asp | Gly | Lys | Ser | Phe | Leu |
| 1105 | | | | | 1110 | | | | | 1115 | | | | | 1120 |
| Tyr | Asp | Gly | Lys | Thr | Gly | Glu | Arg | Phe | Asp | Asn | Lys | Val | Val | Ile | Gly |
| | | | 1125 | | | | | 1130 | | | | | | 1135 | |
| Tyr | Ile | Tyr | Met | Leu | Lys | Leu | Ser | His | Leu | Ile | Ala | Asp | Lys | Ile | His |

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 Gly Lys Ala Gln Met Gly Gly Gln Arg Phe Gly Glu Met Glu Val Trp
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 Ala Phe Pro Cys Tyr Leu Ser Ala Leu His Ala Arg Cys Asp Asp Leu
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 Asn Pro Asn His Ile Asp Leu Trp Arg Gln Phe Ala Leu Ser Leu Gly
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 Val Ser Glu Glu Glu Leu Ala Asn His Glu Phe Ser Gln Ala Ala Gln
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 Asp Met Val Ala Thr Phe Arg Arg Leu Cys Asp Met Pro Gln Leu Ala
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 Val Gly Leu Gly Ala Leu Tyr Thr Tyr Glu Ile Gln Ile Pro Gln Val
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Cys Val Glu Lys Ile Arg Gly Leu Lys Glu Tyr Phe Gly Val Ser Ala
145 150 155 160

Arg Gly Tyr Ala Tyr Phe Thr Val His Gln Glu Ala Asp Ile Lys His
165 170 175

Ala Ser Glu Glu Lys Glu Met Leu Gln Thr Leu Val Gly Arg Glu Asn
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Pro Asp Ala Val Leu Gln Gly Ser Gln Glu Val Leu Asp Thr Leu Trp
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Val Pro Met Thr Ala Lys Lys Val Arg Leu Val Arg Arg Asn Lys Gln
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Pro Val Glu Gln Lys Ser Arg Gly Ala Phe Cys Asp Lys Glu Phe Tyr
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Pro Cys Glu Glu Gly Arg Cys Gln Pro Val Glu Ala Gln Gln Glu Ser
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Cys Tyr Gly Arg Leu Tyr Ser Val Lys Val Asn Asp Asp Cys Asn Val
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Glu Ile Cys Gln Ser Val Pro Glu Tyr Ala Thr Val Gly Ser Pro Tyr
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Pro Ile Glu Ile Leu Ala Ile Gly Lys Lys Asp Cys Val Asp Val Val
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Ile Thr Gln Gln Leu Pro Cys Glu Ala Glu Phe Val Ser Ser Asp Pro
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Glu Thr Thr Pro Thr Ser Asp Gly Lys Leu Val Trp Lys Ile Asp Arg
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Leu Gly Ala Gly Asp Lys Cys Lys Ile Thr Val Trp Val Lys Pro Leu
180 185 190

0904133-04304

Lys Glu Gly Cys Cys Phe Thr Ala Ala Thr Val Cys Ala Cys Pro Glu
 195 200 205
 Leu Arg Ser Tyr Thr Lys Cys Gly Gln Pro Ala Ile Cys Ile Lys Gln
 210 215 220
 Glu Gly Pro Asp Cys Ala Cys Leu Arg Cys Pro Val Cys Tyr Lys Ile
 225 230 235 240
 Glu Val Val Asn Thr Gly Ser Ala Ile Ala Arg Asn Val Thr Val Asp
 245 250 255
 Asn Pro Val Pro Asp Gly Tyr Ser His Ala Ser Gly Gln Arg Val Leu
 260 265 270
 Ser Phe Asn Leu Gly Asp Met Arg Pro Gly Asp Lys Lys Val Phe Thr
 275 280 285
 Val Glu Phe Cys Pro Gln Arg Arg Gly Gln Ile Thr Asn Val Ala Thr
 290 295 300
 Val Thr Tyr Cys Gly Gly His Lys Cys Ser Ala Asn Val Thr Thr Val
 305 310 315 320
 Val Asn Glu Pro Cys Val Gln Val Asn Ile Ser Gly Ala Asp Trp Ser
 325 330 335
 Tyr Val Cys Lys Pro Val Glu Tyr Ser Ile Ser Val Ser Asn Pro Gly
 340 345 350
 Asp Leu Val Leu His Asp Val Val Ile Gln Asp Thr Leu Pro Ser Gly
 355 360 365
 Val Thr Val Leu Glu Ala Pro Gly Gly Glu Ile Cys Cys Asn Lys Val
 370 375 380
 Val Trp Arg Ile Lys Glu Met Cys Pro Gly Glu Thr Leu Gln Phe Lys
 385 390 395 400
 Leu Val Val Lys Ala Gln Val Pro Gly Arg Phe Thr Asn Gln Val Ala
 405 410 415
 Val Thr Ser Glu Ser Asn Cys Gly Thr Cys Thr Ser Cys Ala Glu Thr
 420 425 430
 Thr Thr His Trp Lys Gly Leu Ala Ala Thr His Met Cys Val Leu Asp
 435 440 445
 Thr Asn Asp Pro Ile Cys Val Gly Glu Asn Thr Val Tyr Arg Ile Cys
 450 455 460
 Val Thr Asn Arg Gly Ser Ala Glu Asp Thr Asn Val Ser Leu Ile Leu
 465 470 475 480
 Lys Phe Ser Lys Glu Leu Gln Pro Ile Ala Ser Ser Gly Pro Thr Lys
 485 490 495

Gly Val Glu Ile Thr Val Ile Glu Ala Leu Asp His Ile Leu Ala Val

| 195 | | | | | 200 | | | | | 205 | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Asn | Lys | Glu | Val | Ser | Gln | Thr | Val | Thr | Asn | Lys | Phe | Thr | Lys | Gln |
| 210 | | | | | | 215 | | | | | 220 | | | | |
| Gly | Ile | Arg | Ile | Leu | Thr | Lys | Ala | Ser | Ile | Ser | Ala | Ile | Glu | Glu | Ser |
| 225 | | | | | | 230 | | | | | 235 | | | | 240 |
| Gln | Asn | Gln | Val | Arg | Ile | Thr | Val | Asn | Asp | Gln | Val | Glu | Glu | Phe | Asp |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Tyr | Val | Leu | Val | Ala | Ile | Gly | Arg | Gln | Phe | Asn | Thr | Ala | Ser | Ile | Gly |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Leu | Asp | Asn | Ala | Gly | Val | Ile | Arg | Asp | Asp | Arg | Gly | Val | Ile | Pro | Val |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Asp | Glu | Thr | Met | Arg | Thr | Asn | Val | Pro | Asn | Ile | Tyr | Ala | Ile | Gly | Asp |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Ile | Thr | Gly | Lys | Trp | Leu | Leu | Ala | His | Val | Ala | Ser | His | Gln | Gly | Val |
| 305 | | | | | | 310 | | | | | 315 | | | | 320 |
| Ile | Ala | Ala | Lys | Asn | Ile | Ser | Gly | His | His | Glu | Val | Met | Asp | Tyr | Ser |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Ala | Ile | Pro | Ser | Val | Ile | Phe | Thr | His | Pro | Glu | Ile | Ala | Met | Val | Gly |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Leu | Ser | Leu | Gln | Glu | Ala | Glu | Gln | Gln | Asn | Leu | Pro | Ala | Lys | Leu | Thr |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Lys | Phe | Pro | Phe | Lys | Ala | Ile | Gly | Lys | Ala | Val | Ala | Leu | Gly | Ala | Ser |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Asp | Gly | Phe | Ala | Ala | Ile | Val | Ser | His | Glu | Ile | Thr | Gln | Gln | Ile | Leu |
| 385 | | | | 390 | | | | | 395 | | | | | | 400 |
| Gly | Ala | Tyr | Val | Ile | Gly | Pro | His | Ala | Ser | Ser | Leu | Ile | Gly | Glu | Met |
| | | | 405 | | | | | 410 | | | | | | 415 | |
| Thr | Leu | Ala | Ile | Arg | Asn | Glu | Leu | Thr | Leu | Pro | Cys | Ile | Tyr | Glu | Thr |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Val | His | Ala | His | Pro | Thr | Leu | Ser | Glu | Val | Trp | Ala | Glu | Gly | Ala | Leu |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Leu | Ala | Thr | Asn | His | Pro | Leu | His | Phe | Pro | Pro | Lys | Ser | | | |
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<210> 400

<211> 544

<212> PRT

<213> Chlamydia pneumoniae

<400> 400

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| Met | Ala | Ala | Lys | Asn | Ile | Lys | Tyr | Asn | Glu | Glu | Ala | Arg | Lys | Lys | Ile |
| | | | | 5 | | | | | 10 | | | | | 15 | |
| His | Lys | Gly | Val | Lys | Thr | Leu | Ala | Glu | Ala | Val | Lys | Val | Thr | Leu | Gly |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Pro | Lys | Gly | Arg | His | Val | Val | Ile | Asp | Lys | Ser | Phe | Gly | Ser | Pro | Gln |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Val | Thr | Lys | Asp | Gly | Val | Thr | Val | Ala | Lys | Glu | Ile | Glu | Leu | Glu | Asp |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Lys | His | Glu | Asn | Met | Gly | Ala | Gln | Met | Val | Lys | Glu | Val | Ala | Ser | Lys |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Thr | Ala | Asp | Lys | Ala | Gly | Asp | Gly | Thr | Thr | Thr | Ala | Thr | Val | Leu | Ala |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Glu | Ala | Ile | Tyr | Ser | Glu | Gly | Leu | Arg | Asn | Val | Thr | Ala | Gly | Ala | Asn |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Pro | Met | Asp | Leu | Lys | Arg | Gly | Ile | Asp | Lys | Ala | Val | Lys | Val | Val | Val |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Asp | Glu | Leu | Lys | Lys | Ile | Ser | Lys | Pro | Val | Gln | His | His | Lys | Glu | Ile |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Ala | Gln | Val | Ala | Thr | Ile | Ser | Ala | Asn | Asn | Asp | Ser | Glu | Ile | Gly | Asn |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Leu | Ile | Ala | Glu | Ala | Met | Glu | Lys | Val | Gly | Lys | Asn | Gly | Ser | Ile | Thr |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Val | Glu | Glu | Ala | Lys | Gly | Phe | Glu | Thr | Val | Leu | Asp | Val | Val | Glu | Gly |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Met | Asn | Phe | Asn | Arg | Gly | Tyr | Leu | Ser | Ser | Tyr | Phe | Ser | Thr | Asn | Pro |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Glu | Thr | Gln | Glu | Cys | Val | Leu | Glu | Asp | Ala | Leu | Ile | Leu | Ile | Tyr | Asp |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Lys | Lys | Ile | Ser | Gly | Ile | Lys | Asp | Phe | Leu | Pro | Val | Leu | Gln | Gln | Val |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Ala | Glu | Ser | Gly | Arg | Pro | Leu | Leu | Ile | Ile | Ala | Glu | Glu | Ile | Glu | Gly |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Glu | Ala | Leu | Ala | Thr | Leu | Val | Val | Asn | Arg | Leu | Arg | Ala | Gly | Phe | Arg |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Val | Cys | Ala | Val | Lys | Ala | Pro | Gly | Phe | Gly | Asp | Arg | Arg | Lys | Ala | Met |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Leu | Glu | Asp | Ile | Ala | Ile | Leu | Thr | Gly | Gly | Gln | Leu | Val | Ser | Glu | Glu |
| | 290 | | | | | 295 | | | | | 300 | | | | |

Leu Gly Met Lys Leu Glu Asn Thr Thr Leu Ala Met Leu Gly Lys Ala
305 310 315 320

Lys Lys Val Ile Val Thr Lys Glu Asp Thr Thr Ile Val Glu Gly Leu
325 330 335

Gly Asn Lys Pro Asp Ile Gln Ala Arg Cys Asp Asn Ile Lys Lys Gln
340 345 350

Ile Glu Asp Ser Thr Ser Asp Tyr Asp Lys Glu Lys Leu Gln Glu Arg
355 360 365

Leu Ala Lys Leu Ser Gly Gly Val Ala Val Ile Arg Val Gly Ala Ala
370 375 380

Thr Glu Ile Glu Met Lys Glu Lys Lys Asp Arg Val Asp Asp Ala Gln
385 390 395 400

His Ala Thr Ile Ala Ala Val Glu Glu Gly Ile Leu Pro Gly Gly Gly
405 410 415

Thr Ala Leu Val Arg Cys Ile Pro Thr Leu Glu Ala Phe Leu Pro Met
420 425 430

Leu Ala Asn Glu Asp Glu Ala Ile Gly Thr Arg Ile Ile Leu Lys Ala
435 440 445

Leu Thr Ala Pro Leu Lys Gln Ile Ala Ser Asn Ala Gly Lys Glu Gly
450 455 460

Ala Ile Ile Cys Gln Gln Val Leu Ala Arg Ser Ala Asn Glu Gly Tyr
465 470 475 480

Asp Ala Leu Arg Asp Ala Tyr Thr Asp Met Ile Asp Ala Gly Ile Leu
485 490 495

Asp Pro Thr Lys Val Thr Arg Ser Ala Leu Glu Ser Ala Ala Ser Ile
500 505 510

Ala Gly Leu Leu Leu Thr Thr Glu Ala Leu Ile Ala Asp Ile Pro Glu
515 520 525

Glu Lys Ser Ser Ser Ala Pro Ala Met Pro Ser Ala Gly Met Asp Tyr
530 535 540

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<211> 664

<212> PRT

<213> Chlamydia pneumoniae

<400> 401

Met Glu Lys Val Ser Ser Tyr Pro Ser Val Pro Leu Pro Leu Gly Ala
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Ser Lys Ile Ser Pro Asn Arg Tyr Arg Phe Ala Leu Tyr Ala Ser Gln
20 25 30

Ala Thr Glu Val Ile Leu Ala Leu Thr Asp Glu Asn Ser Glu Val Ile
 35 40 45
 Glu Val Pro Leu Tyr Pro Asp Thr His Arg Thr Gly Ala Ile Trp His
 50 55 60
 Ile Glu Ile Glu Gly Ile Ser Asp Gln Ser Ser Tyr Ala Phe Arg Val
 65 70 75 80
 His Gly Pro Lys Lys His Gly Met Gln Tyr Ser Phe Lys Glu Tyr Leu
 85 90 95
 Ala Asp Pro Tyr Ala Lys Asn Ile His Ser Pro Gln Ser Phe Gly Ser
 100 105 110
 Arg Lys Lys Gln Gly Asp Tyr Ala Phe Cys Tyr Leu Lys Glu Glu Pro
 115 120 125
 Phe Pro Trp Asp Gly Asp Gln Pro Leu His Leu Pro Lys Glu Glu Met
 130 135 140
 Ile Ile Tyr Glu Met His Val Arg Ser Phe Thr Gln Ser Ser Ser Ser
 145 150 155 160
 Arg Val His Ala Pro Gly Thr Phe Leu Gly Ile Ile Glu Lys Ile Asp
 165 170 175
 His Leu His Lys Leu Gly Ile Asn Ala Val Glu Leu Leu Pro Ile Phe
 180 185 190
 Glu Phe Asp Glu Thr Ala His Pro Phe Arg Asn Ser Lys Phe Pro Tyr
 195 200 205
 Leu Cys Asn Tyr Trp Gly Tyr Ala Pro Leu Asn Phe Phe Ser Pro Cys
 210 215 220
 Arg Arg Tyr Ala Tyr Ala Ser Asp Pro Cys Ala Pro Ser Arg Glu Phe
 225 230 235 240
 Lys Thr Leu Val Lys Thr Leu His Gln Glu Gly Ile Glu Val Ile Leu
 245 250 255
 Asp Val Val Phe Asn His Thr Gly Leu Gln Gly Thr Thr Cys Ser Leu
 260 265 270
 Pro Trp Ile Asp Thr Pro Ser Tyr Tyr Ile Leu Asp Ala Gln Gly His
 275 280 285
 Phe Thr Asn Tyr Ser Gly Cys Gly Asn Thr Leu Asn Thr Asn Arg Ala
 290 295 300
 Pro Thr Thr Gln Trp Ile Leu Asp Ile Leu Arg Tyr Trp Val Glu Glu
 305 310 315 320
 Met His Val Asp Gly Phe Arg Phe Asp Leu Ala Ser Val Phe Ser Arg
 325 330 335

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| | | | | | | | | | | | | | | | |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Gly 340 | Pro 341 | Ser 342 | Gly 343 | Ser 344 | Pro 345 | Leu 346 | Gln 347 | Phe 348 | Ala 349 | Pro 350 | Val 351 | Leu 352 | Glu 353 | Ala 354 | Ile 355 |
| Ser 356 | Phe 357 | Asp 358 | Pro 359 | Leu 360 | Leu 361 | Ala 362 | Ser 363 | Thr 364 | Lys 365 | Ile 366 | Ile 367 | Ala 368 | Glu 369 | Pro 370 | Trp 371 |
| Asp 372 | Ala 373 | Gly 374 | Gly 375 | Leu 376 | Tyr 377 | Gln 378 | Val 379 | Gly 380 | Tyr 381 | Phe 382 | Pro 383 | Thr 384 | Leu 385 | Ser 386 | Pro 387 |
| Arg 388 | Trp 389 | Ser 390 | Glu 391 | Trp 392 | Asn 393 | Gly 394 | Pro 395 | Tyr 396 | Arg 397 | Asp 398 | Asn 399 | Val 400 | Lys 401 | Ala 402 | Phe 403 |
| Leu 404 | Asn 405 | Gly 406 | Asp 407 | Gln 408 | Asn 409 | Leu 410 | Ile 411 | Gly 412 | Thr 413 | Phe 414 | Ala 415 | Ser 416 | Arg 417 | Ile 418 | Ser 419 |
| Gly 420 | Ser 421 | Gln 422 | Asp 423 | Ile 424 | Tyr 425 | Pro 426 | His 427 | Gly 428 | Ser 429 | Pro 430 | Thr 431 | Asn 432 | Ser 433 | Ile 434 | Asn 435 |
| Tyr 436 | Val 437 | Ser 438 | Cys 439 | His 440 | Asp 441 | Gly 442 | Phe 443 | Thr 444 | Leu 445 | Cys 446 | Asp 447 | Thr 448 | Val 449 | Thr 450 | Tyr 451 |
| Asn 452 | His 453 | Lys 454 | His 455 | Asn 456 | Glu 457 | Ala 458 | Asn 459 | Gly 460 | Glu 461 | Asp 462 | Asn 463 | Arg 464 | Asp 465 | Gly 466 | Thr 467 |
| Asp 468 | Ala 469 | Asn 470 | Tyr 471 | Ser 472 | Tyr 473 | Asn 474 | Phe 475 | Gly 476 | Thr 477 | Glu 478 | Gly 479 | Lys 480 | Thr 481 | Glu 482 | Asp 483 |
| Pro 484 | Gly 485 | Ile 486 | Leu 487 | Glu 488 | Val 489 | Arg 490 | Glu 491 | Arg 492 | Gln 493 | Leu 494 | Arg 495 | Asn 496 | Phe 497 | Phe 498 | Leu 499 |
| Thr 500 | Leu 501 | Met 502 | Val 503 | Ser 504 | Gln 505 | Gly 506 | Ile 507 | Pro 508 | Met 509 | Ile 510 | Gln 511 | Ser 512 | Gly 513 | Asp 514 | Glu 515 |
| Tyr 516 | Ala 517 | His 518 | Thr 519 | Ala 520 | Glu 521 | Gly 522 | Asn 523 | Asn 524 | Asn 525 | Arg 526 | Trp 527 | Ala 528 | Leu 529 | Asp 530 | Ser 531 |
| Asn 532 | Ala 533 | Asn 534 | Tyr 535 | Phe 536 | Leu 537 | Trp 538 | Asp 539 | Gln 540 | Leu 541 | Thr 542 | Ala 543 | Lys 544 | Pro 545 | Thr 546 | Leu 547 |
| Met 548 | His 549 | Phe 550 | Leu 551 | Cys 552 | Asp 553 | Leu 554 | Ile 555 | Ala 556 | Phe 557 | Arg 558 | Lys 559 | Lys 560 | Tyr 561 | Lys 562 | Thr 563 |
| Leu 564 | Phe 565 | Asn 566 | Arg 567 | Gly 568 | Phe 569 | Leu 570 | Ser 571 | Asn 572 | Lys 573 | Glu 574 | Ile 575 | Ser 576 | Trp 577 | Val 578 | Asp 579 |
| Ala 580 | Met 581 | Gly 582 | Asn 583 | Pro 584 | Met 585 | Thr 586 | Trp 587 | Arg 588 | Pro 589 | Gly 590 | Asn 591 | Phe 592 | Leu 593 | Ala 594 | Phe 595 |
| Lys 596 | Ile 597 | Lys 598 | Ser 599 | Pro 600 | Lys 601 | Ala 602 | His 603 | Val 604 | Tyr 605 | Val 606 | Ala 607 | Phe 608 | His 609 | Val 610 | Gly 611 |
| Ala 612 | Gln 613 | Asp 614 | Gln 615 | Leu 616 | Ala 617 | Thr 618 | Leu 619 | Pro 620 | Lys 621 | Ala 622 | Ser 623 | Ser 624 | Asn 625 | Phe 626 | Leu 627 |
| Pro 628 | Tyr 629 | Gln 630 | Ile 631 | Val 632 | Ala 633 | Glu 634 | Ser 635 | Gln 636 | Gln 637 | Gly 638 | Phe 639 | Val 640 | Pro 641 | Gln 642 | Asn 643 |

| | | | | | | | | | | | | | | | |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> | 402 | | | | | | | | | | | | | | |
| Met | Ala | Phe | Lys | Glu | Val | Val | Arg | Val | Ala | Val | Thr | Gly | Gly | Lys | Gly |
| | | | | 5 | | | | | 10 | | | | | 15 | |
| Gln | Ile | Ala | Tyr | Asn | Phe | Leu | Phe | Ala | Leu | Ala | His | Gly | Asp | Val | Phe |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Gly | Val | Asp | Arg | Gly | Val | Asp | Leu | Arg | Ile | Tyr | Asp | Val | Pro | Gly | Thr |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Glu | Arg | Ala | Leu | Ser | Gly | Val | Arg | Met | Glu | Leu | Asp | Asp | Gly | Ala | Tyr |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Pro | Leu | Leu | His | Arg | Leu | Arg | Val | Thr | Thr | Ser | Leu | Asn | Asp | Ala | Phe |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Asp | Gly | Ile | Asp | Ala | Ala | Phe | Leu | Ile | Gly | Ala | Val | Pro | Arg | Gly | Pro |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Gly | Met | Glu | Arg | Gly | Asp | Leu | Leu | Lys | Gln | Asn | Gly | Gln | Ile | Phe | Ser |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Leu | Gln | Gly | Ala | Ala | Leu | Asn | Thr | Ala | Ala | Lys | Arg | Asp | Ala | Lys | Ile |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Phe | Val | Val | Gly | Asn | Pro | Val | Asn | Thr | Asn | Cys | Trp | Ile | Ala | Met | Lys |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| His | Ala | Pro | Arg | Leu | His | Arg | Lys | Asn | Phe | His | Ala | Met | Leu | Arg | Leu |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Asp | Gln | Asn | Arg | Met | His | Ser | Met | Leu | Ala | His | Arg | Ala | Glu | Val | Pro |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Leu | Glu | Glu | Val | Ser | Arg | Val | Val | Ile | Trp | Gly | Asn | His | Ser | Ala | Lys |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Gln | Val | Pro | Asp | Phe | Thr | Gln | Ala | Arg | Ile | Ser | Gly | Lys | Pro | Ala | Ala |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Glu | Val | Ile | Gly | Asp | Arg | Asp | Trp | Leu | Glu | Asn | Ile | Leu | Val | His | Ser |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Val | Gln | Asn | Arg | Gly | Ser | Ala | Val | Ile | Glu | Ala | Arg | Gly | Lys | Ser | Ser |

225 230 235 240

Ala Ala Ser Ala Ser Arg Ala Leu Ala Glu Ala Ala Arg Ser Ile Phe
 245 250 255

Cys Pro Lys Ser Asp Glu Trp Phe Ser Ser Gly Val Cys Ser Asp His
 260 265 270

Asn Pro Tyr Gly Ile Pro Glu Asp Leu Ile Phe Gly Phe Pro Cys Arg
 275 280 285

Met Leu Pro Ser Gly Asp Tyr Glu Ile Ile Pro Gly Leu Pro Trp Glu
 290 295 300

Pro Phe Ile Arg Asn Lys Ile Gln Ile Ser Leu Asp Glu Ile Ala Gln
305 310 315 320

Glu Lys Ala Ser Val Ser Ser Leu
 325

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 <212> PRT
 <213> Chlamydia pneumoniae

<400> 403
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 20 25 30

Thr Lys Asn Ser Arg Asp Leu Asn Gln Glu Ser Val Ile Leu Lys Glu
 35 40 45

Asn Arg Glu Thr Pro Ser Leu Val Lys Arg Leu Ser Arg Arg Ser Arg
 50 55 60

Arg Leu Phe Ala Arg Arg Asp Gln Thr Gln Lys Asp Thr Leu Gln Val
65 70 75 80

Gln Ala Asn Phe Lys Thr Tyr Ala Glu Lys Ile Ser Glu Gln Asp Glu
 85 90 95

Arg Asp Leu Ser Phe Val Val Ser Ser Ala Ala Glu Lys Ser Ser Ile
 100 105 110

Ser Leu Ala Leu Ser Gln Gly Glu Ile Lys Asp Ala Leu Tyr Arg Ile
 115 120 125

Arg Glu Val His Pro Leu Ala Leu Ile Glu Ala Leu Ala Glu Asn Pro
 130 135 140

Ala Leu Ile Glu Gly Met Lys Lys Met Gln Gly Arg Asp Trp Ile Trp
145 150 155 160

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Asn Leu Phe Leu Thr Gln Leu Ser Glu Val Phe Ser Gln Ala Trp Ser
 165 170 175
 Gln Gly Val Ile Ser Glu Glu Asp Ile Ala Ala Phe Ala Ser Thr Leu
 180 185 190
 Gly Leu Asp Ser Gly Thr Val Ala Ser Ile Val Gln Gly Glu Arg Trp
 195 200 205
 Pro Glu Leu Val Asp Ile Val Ile Thr
 210 215

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 <211> 270
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 404
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 Leu Ile Val Leu Ser Ser Leu Val Cys Val Pro Thr Phe Cys Trp Leu
 35 40 45
 Phe Leu Pro Glu Leu Ser Leu Ser Lys Phe Asn Pro Ser Pro Ile Arg
 50 55 60
 Asn Leu Phe Leu Val Ser Ser Thr Leu Ser Lys Val Pro Pro Thr Ala
 65 70 75 80
 Ile Ala Glu His Leu Arg Leu Ser Ala Asp Ala Pro Thr Tyr Leu His
 85 90 95
 Glu Phe Ser Ile Lys Glu Ala Glu Ser Ser Leu His Ala Leu Gly Ile
 100 105 110
 Phe Ser Ser Leu Val Ile Glu Lys Ser Pro Asp Asn Lys Gly Ile Thr
 115 120 125
 Ile Phe Tyr Thr Leu Gln Thr Pro Ile Ala Tyr Val Gly Asn Arg Ser
 130 135 140
 Asn Thr Leu Cys Asn Leu Glu Gly Ser Cys Phe Leu Gly Gln Pro Tyr
 145 150 155 160
 Phe Pro Ser Leu Asn Leu Pro Gln Ile Phe Phe Ser Gln Glu Asp Leu
 165 170 175
 Lys Met Gln Lys Leu Pro Lys Glu Lys Met Leu Phe Thr Lys Ile Leu
 180 185 190
 Leu Lys Glu Leu Ala Met Glu Ser Pro Lys Ile Ile Asp Leu Ser Leu
 195 200 205

TOE240" DETT861

| 195 | | | | | 200 | | | | | 205 | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Asn | Asn | Asn | Lys | Ala | Ala | Glu | Leu | Leu | Lys | Glu | Met | Gln | Asp | Asn |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Pro | Val | Val | Pro | Gly | Lys | Thr | Pro | Ala | Ile | Ala | Gln | Ser | Leu | Val | Asp |
| | 225 | | | | | 230 | | | | | 235 | | | | 240 |
| Gln | Thr | Asp | Ala | Thr | Ala | Thr | Gln | Ile | Glu | Lys | Asp | Gly | Asn | Ala | Ile |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Arg | Asp | Ala | Tyr | Phe | Ala | Gly | Gln | Asn | Ala | Ser | Gly | Ala | Val | Glu | Asn |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Ala | Lys | Ser | Asn | Asn | Ser | Ile | Ser | Asn | Ile | Asp | Ser | Ala | Lys | Ala | Ala |
| | | 275 | | | | | | 280 | | | | 285 | | | |
| Ile | Ala | Thr | Ala | Lys | Thr | Gln | Ile | Ala | Glu | Ala | Gln | Lys | Lys | Phe | Pro |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Asp | Ser | Pro | Ile | Leu | Gln | Glu | Ala | Glu | Gln | Met | Val | Ile | Gln | Ala | Glu |
| | 305 | | | | | 310 | | | | | 315 | | | | 320 |
| Lys | Asp | Leu | Lys | Asn | Ile | Lys | Pro | Ala | Asp | Gly | Ser | Asp | Val | Pro | Asn |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Pro | Gly | Thr | Thr | Val | Gly | Gly | Ser | Lys | Gln | Gln | Gly | Ser | Ser | Ile | Gly |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Ser | Ile | Arg | Val | Ser | Met | Leu | Leu | Asp | Asp | Ala | Glu | Asn | Glu | Thr | Ala |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Ser | Ile | Leu | Met | Ser | Gly | Phe | Arg | Gln | Met | Ile | His | Met | Phe | Asn | Thr |
| | | 370 | | | | 375 | | | | | 380 | | | | |
| Glu | Asn | Pro | Asp | Ser | Gln | Ala | Ala | Gln | Gln | Glu | Leu | Ala | Ala | Gln | Ala |
| | 385 | | | | | 390 | | | | | 395 | | | | 400 |
| Arg | Ala | Ala | Lys | Ala | Ala | Gly | Asp | Asp | Ser | Ala | Ala | Ala | Ala | Leu | Ala |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Asp | Ala | Gln | Lys | Ala | Leu | Glu | Ala | Ala | Leu | Gly | Lys | Ala | Gly | Gln | Gln |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Gln | Gly | Ile | Leu | Asn | Ala | Leu | Gly | Gln | Ile | Ala | Ser | Ala | Ala | Val | Val |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Ser | Ala | Gly | Val | Pro | Pro | Ala | Ala | Ala | Ser | Ser | Ile | Gly | Ser | Ser | Val |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Lys | Gln | Leu | Tyr | Lys | Thr | Ser | Lys | Ser | Thr | Gly | Ser | Asp | Tyr | Lys | Thr |
| | 465 | | | | | 470 | | | | | 475 | | | | 480 |
| Gln | Ile | Ser | Ala | Gly | Tyr | Asp | Ala | Tyr | Lys | Ser | Ile | Asn | Asp | Ala | Tyr |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Gly | Arg | Ala | Arg | Asn | Asp | Ala | Thr | Arg | Asp | Val | Ile | Asn | Asn | Val | Ser |

| | | |
|---|---------------------------------|-----|
| 500 | 505 | 510 |
| Thr Pro Ala Leu Thr Arg Ser Val | Pro Arg Ala Arg Thr Glu Ala Arg | |
| 515 | 520 | 525 |
| Gly Pro Glu Lys Thr Asp Gln Ala Leu Ala Arg Val Ile Ser Gly Asn | | |
| 530 | 535 | 540 |
| Ser Arg Thr Leu Gly Asp Val Tyr Ser Gln Val Ser Ala Leu Gln Ser | | |
| 545 | 550 | 555 |
| Val Met Gln Ile Ile Gln Ser Asn Pro Gln Ala Asn Asn Glu Glu Ile | | |
| 565 | 570 | 575 |
| Arg Gln Lys Leu Thr Ser Ala Val Thr Lys Pro Pro Gln Phe Gly Tyr | | |
| 580 | 585 | 590 |
| Pro Tyr Val Gln Leu Ser Asn Asp Ser Thr Gln Lys Phe Ile Ala Lys | | |
| 595 | 600 | 605 |
| Leu Glu Ser Leu Phe Ala Glu Gly Ser Arg Thr Ala Ala Glu Ile Lys | | |
| 610 | 615 | 620 |
| Ala Leu Ser Phe Glu Thr Asn Ser Leu Phe Ile Gln Gln Val Leu Val | | |
| 625 | 630 | 635 |
| Asn Ile Gly Ser Leu Tyr Ser Gly Tyr Leu Gln | | |
| 645 | 650 | |

<210> 406

<211> 1074

<212> DNA

<213> Chlamydia trachomatis serovar D

<400> 406

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<210> 407

<211> 1827
 <212> DNA
 <213> Chlamydia trachomatis serovar D

<400> 407
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<210> 408
 <211> 804
 <212> DNA
 <213> Chlamydia trachomatis serovar D

<400> 408
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 ggaacactct tacgttttgc taaagactct ttccttccctg gaatccaaca ctatcaacaa 720
 gcaactctct taggagcctt ctctcctcaa caagctgtca tttgcgacct tcgttgcgaa 780
 gactatcttt tacttaaacg taaa 804

<210> 409
 <211> 663
 <212> DNA
 <213> Chlamydia trachomatis serovar D

<400> 409
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 ataaaagaag aatctgttac acttcgcgag aagccggatg ccggctgtaa aaagaaatct 180
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 ttgccgaact ttaagtctta cgcagatcca atgacagatt ccgaaagaaa agacctttct 300
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<210> 410
 <211> 1470
 <212> DNA
 <213> Chlamydia trachomatis serovar D

<400> 410
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<210> 411
 <211> 234
 <212> DNA
 <213> Chlamydia trachomatis serovar D

<400> 411
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 atcggtaaaa ttatcggtaa agaaggacgc actattaagg ctatccgtac tttattgggtt 180
 tccgtagcaa gtcgagataa tgtgaaagtc agcctagaaa ttatggaaga gcgg 234

<210> 412
 <211> 1941
 <212> DNA
 <213> Chlamydia trachomatis serovar D

<400> 412
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 ctattctctg gttatcttct t 1941

<210> 413
 <211> 693
 <212> DNA
 <213> Chlamydia trachomatis serovar D

<400> 413
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ccaggaactt gttgtagttg tcatcaatct tat 693

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<210> 414
 <211> 1599
 <212> DNA
 <213> Chlamydia trachomatis serovar D

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<400> 414
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<210> 415
 <211> 1395
 <212> DNA
 <213> Chlamydia trachomatis serovar D

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<400> 415
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atcactgccg ctcaagcagg actcaaaact gcgctaactc aaaagcgaga ggctggcgga 120
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ctcattcgca gcaataagat cactgtcttc tctggaagag gctctttgat ctcttcaaca 360
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ttatgctcaa caggcgtgct aaacctcaaa gaaatccctc aaaaaatggc cattattggc 540

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ggtaggtgtga tcggttgaga attcgcttcc ttattccata cgttaggctc cgaagtttct 600
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ttcgataaat tcacccgaca aggactccgt ttcgtagtag aagcctctgt atcaaatatt 720
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accttagcag aagtttgggc tgaaagtgcg ttgttagctg ttgatacccc attacatatg 1380
ccccctgcta aaaaa 1395

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<210> 416

<211> 366

<212> DNA

<213> Chlamydia trachomatis serovar D

<400> 416

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tatattttatg gaatagggcc agctctttct aaagagatca ttgctagatt gcagttgaat 120
ccogaagcta gagctgcaga gttgactgag gaagagggtg gtcgactaaa cgctctttta 180
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ctgattacta tccatgctta tcgtggacaa agacatagac tttctttgcc tgttcgtggg 300
cagagaacaa aaacaaattc tcgcacgcgt aagggtaaac gtaaaactgt tgcaggtaag 360
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<210> 417

<211> 1659

<212> DNA

<213> Chlamydia trachomatis serovar D

<400> 417

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```

<210> 418
<211> 576
<212> DNA
<213> Chlamydia trachomatis serovar D

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atagagaaaag ctatcgatcg agatatgtgg atgagtgcaa atgaagcaat ggagtttggg 540
ctgttagatg ggattctctt ctcttttaac gacttgg 576

```

```

<210> 419
<211> 825
<212> DNA
<213> Chlamydia trachomatis serovar D

```

```

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<210> 420
<211> 5310
<212> DNA
<213> Chlamydia trachomatis serovar D

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| | | | | | | |
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| ttcttcggag | aaggtgaagt | tatctttgat | cacagagttg | ccctcaaaaa | cggaggagct | 480 |
| atcttatggag | agaaagaggt | agtctttgaa | aacataaaat | ctctactagt | agaagtaa | 540 |
| atcgcggtcg | agaaaggggg | tagcgtctat | gcaaaagaac | gagtatcttt | agaaaatg | 600 |
| accgaagcaa | ccttctcctc | caatggtggg | gaacaaggtg | gtggtggaat | ctattcagaa | 660 |
| caggatatgt | taatcagtga | ttgcaacaat | gtacatttcc | aagggaatgc | tgcaggagca | 720 |
| acagcagtaa | aacaatgtct | ggatgaagaa | atgatcgat | tgctcgagaa | atgcgttgat | 780 |
| agcttatccg | aagatacact | ggatagcact | ccagaaacgg | aacagactga | gtcaaatgga | 840 |
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| gaaggtgggg | ctattcattc | taaaacgggt | actctatcta | acctcaagtc | taccttcact | 1800 |
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| cctccagtag | aaggagaaga | gtctacagca | acagaagatc | caaattctaa | tacagaagga | 1920 |
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<210> 421

<211> 5253

<212> DNA

<213> Chlamydia trachomatis serovar D

<400> 421

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<210> 422

<211> 1980

<212> DNA

<213> Chlamydia trachomatis serovar D

<400> 422

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<210> 423

<211> 978

<212> DNA

<213> Chlamydia trachomatis serovar D

<400> 423

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<210> 424

<211> 696

<212> DNA

<213> Chlamydia trachomatis serovar D

<400> 424

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ccgcaactg  ctaaaaggaa  atatttagtt  aatttcacta  tttcctcgac  catggggcca  660
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<210> 425

<211> 3756

<212> DNA

<213> Chlamydia trachomatis serovar D

<400> 425

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<210> 426

<211> 894

<212> DNA

<213> Chlamydia trachomatis serovar D

<400> 426

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<210> 427

<211> 894

<212> DNA

<213> Chlamydia trachomatis serovar D

<400> 427

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<210> 428

<211> 459

<212> DNA

<213> Chlamydia trachomatis serovar D

<400> 428

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<210> 429

<211> 1707

<212> DNA

<213> Chlamydia trachomatis serovar D

<400> 429

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 gtgaaacaat taactcctaa tccatgggat gagattgaag ttatgttccc tgtcggaagt 1440
 gatattctctg gcgtagtaac taaaattacg gctttcggag ctttcggttga gttgcaaaa 1500
 ggtatcgaag gactgatcca tgtatccgag ctttcagaga aaccttttgc taaaattgaa 1560
 gatgttctct ctattggaga caaagtttct gctaaagtta tcaagctaga cccagatcac 1620
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 gcggaagaag aatcttctga cagagac 1707

<210> 430

<211> 1998

<212> DNA

<213> Chlamydia trachomatis serovar D

<400> 430

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 ttagaccctc tttctgaaat tcatgaaatt cctctatctt ctaccgacca caggactgga 180
 gccatctggc atatcgaaat tgcaggcatt tctagtgaat ggtcgtatgc ttataaacta 240
 cgtggtacag acttgagctc tcaaaaagtt gctacagatt cttacatcgc agacccttat 300
 tctaagaata tctactcccc tcaactattt ggatccccta aacaagaaaa ggattacgca 360
 tttagttacc tgaaacatga ggattttgac tgggaaggcg aactccttt gcaccttcca 420
 aaagaaaatt acttcattta tgaaatgcat gttcggtcac tcacccgaga tccgtcttcc 480
 caggtttccc atcctggaac tttccttggg attatcgaaa aaatagacca cctcaaaca 540
 ctaggcgttc atgcagttga actccttccct attttcgaat tcgatgaaac cgtccatcca 600
 tttaaaaatc aggacttccc ccacctgtgt aactattggg ggtattcttc ggtgaatttt 660
 ttctgccccct ctgcgcgtta tacttatggg gcagaccctt gcgctccggc ccgagagttc 720
 aagactcttg tcaaagcatt acaccgtgcg ggaatcgaag tcattctcga tgtcgttttc 780
 aatcatacag gctttgaagg cacaagctgc cctcttccct ggatagatct agaactccta 840
 tatatggtea atgatcatg ggatctcatg aatttctccg ggtgtggtaa tacagtcaat 900
 accaacaccc ccaactactc gaaatggatt cttgatgctt tgcggtactg ggtacaggaa 960
 atgcacgtag atggatttcg ttttgattta gcctcagctc tctctagaga tccacaagga 1020
 gtccctctcc ctttaacccc cattttgcaa gctatatcct ctgattccat tttatcagaa 1080
 actaaactga tcgctgaacc ttgggacgct ggaggtttgt atcagcttgg acacttcccc 1140
 totatatcaa cccgatggag cgagtggaaat ggatgctacc gtgaccatgt aaaagccttc 1200
 ctgaatggag atgctcatca agtaagttcc tttgcttcac gaatatctgg atctcatgac 1260
 atctatocca atgggaaacc tacgaactcg attaactata tctgctctca tgatggcttc 1320

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Arg | Glu | Val | Arg | Val | Lys | Trp | Arg | Tyr | Val | Pro | Glu | Gly | Val | Gly |
| 210 | | | | | | 215 | | | | | 220 | | | | |
| Asp | Leu | Ala | Thr | Ile | Ala | Pro | Ser | Ile | Arg | Ala | Pro | Gln | Leu | Gln | Lys |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Ser | Met | Arg | Ser | Phe | Phe | Pro | Lys | Lys | Asp | Asp | Ala | Phe | His | Arg | Ser |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Ser | Ser | Leu | Phe | Tyr | Ser | Pro | Met | Val | Pro | His | Phe | Trp | Ala | Glu | Leu |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Arg | Asn | His | Tyr | Ala | Thr | Ser | Gly | Leu | Lys | Ser | Gly | Tyr | Asn | Ile | Gly |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Ser | Thr | Asp | Gly | Phe | Leu | Pro | Val | Ile | Gly | Pro | Val | Ile | Trp | Glu | Ser |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Glu | Gly | Leu | Phe | Arg | Ala | Tyr | Ile | Ser | Ser | Val | Thr | Asp | Gly | Asp | Gly |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Lys | Ser | His | Lys | Val | Gly | Phe | Leu | Arg | Ile | Pro | Thr | Tyr | Ser | Trp | Gln |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Asp | Met | Glu | Asp | Phe | Asp | Pro | Ser | Gly | Pro | Pro | Pro | Trp | Glu | Glu | Phe |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Ala | Lys | Ile | Ile | Gln | Val | Phe | Ser | Ser | Asn | Thr | Glu | Ala | Leu | Ile | Ile |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Asp | Gln | Thr | Asn | Asn | Pro | Gly | Gly | Ser | Val | Leu | Tyr | Leu | Tyr | Ala | Leu |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Leu | Ser | Met | Leu | Thr | Asp | Arg | Pro | Leu | Glu | Leu | Pro | Lys | His | Arg | Met |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Ile | Leu | Thr | Gln | Asp | Glu | Val | Val | Asp | Ala | Leu | Asp | Trp | Leu | Thr | Leu |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Leu | Glu | Asn | Val | Asp | Thr | Asn | Val | Glu | Ser | Arg | Leu | Ala | Leu | Gly | Asp |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Asn | Met | Glu | Gly | Tyr | Thr | Val | Asp | Leu | Gln | Val | Ala | Glu | Tyr | Leu | Lys |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Ser | Phe | Gly | Arg | Gln | Val | Leu | Asn | Cys | Trp | Ser | Lys | Gly | Asp | Ile | Glu |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Leu | Ser | Thr | Pro | Ile | Pro | Leu | Phe | Gly | Phe | Glu | Lys | Ile | His | Pro | His |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Pro | Arg | Val | Gln | Tyr | Ser | Lys | Pro | Ile | Cys | Val | Leu | Ile | Asn | Glu | Gln |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Asp | Phe | Ser | Cys | Ala | Asp | Phe | Phe | Pro | Val | Val | Leu | Lys | Asp | Asn | Asp |
| | | | 500 | | | | | 505 | | | | | 510 | | |

145 150 155 160
 Ser Leu Glu Leu Pro Thr Val Phe Phe Ser Gln Gln Ala Leu Ser Gln
 165 170 175
 Thr Arg Ile Pro His Gln Thr Leu Ser Ile Val Thr Ser Leu Ile Asp
 180 185 190
 Gln Leu Gln Met Asp Pro Pro Ser Ile Ile Asp Leu Ser Gln Ile Asp
 195 200 205
 His Tyr Pro Gly Glu Phe Val Val Ser Leu Ser Ser Gly Thr Leu Leu
 210 215 220
 Arg Phe Arg Lys Asp Ser Phe Leu Pro Gly Ile Gln His Tyr Gln Gln
 225 230 235 240
 Ala Leu Ser Leu Gly Ala Phe Ser Pro Gln Gln Ala Val Ile Cys Asp
 245 250 255
 Leu Arg Cys Glu Asp Tyr Leu Leu Leu Lys Arg Lys
 260 265

<210> 433
 <211> 221
 <212> PRT
 <213> Chlamydia trachomatis serovar D

<400> 433
 Met Lys Lys Phe Ile Tyr Lys Tyr Ser Phe Gly Ala Leu Leu Leu Leu
 5 10 15
 Ser Gly Leu Ser Gly Leu Ser Ser Cys Cys Ala Asn Ser Tyr Gly Ser
 20 25 30
 Thr Leu Ala Lys Asn Thr Ala Glu Ile Lys Glu Glu Ser Val Thr Leu
 35 40 45
 Arg Glu Lys Pro Asp Ala Gly Cys Lys Lys Lys Ser Ser Cys Tyr Leu
 50 55 60
 Arg Lys Phe Phe Ser Arg Lys Lys Pro Lys Glu Lys Thr Glu Pro Val
 65 70 75 80
 Leu Pro Asn Phe Lys Ser Tyr Ala Asp Pro Met Thr Asp Ser Glu Arg
 85 90 95
 Lys Asp Leu Ser Phe Val Val Ser Ala Ala Ala Asp Lys Ser Ser Ile
 100 105 110
 Ala Leu Ala Met Ala Gln Gly Glu Ile Lys Gly Ala Leu Ser Arg Ile
 115 120 125
 Arg Glu Ile His Pro Leu Ala Leu Leu Gln Ala Leu Ala Glu Asp Pro
 130 135 140

Ala Leu Ile Ala Gly Met Lys Lys Met Gln Gly Arg Asp Trp Val Trp
 145 150 155 160
 Asn Ile Phe Ile Thr Glu Leu Ser Lys Val Phe Ser Gln Ala Ala Ser
 165 170 175
 Leu Gly Ala Phe Ser Val Ala Asp Val Ala Ala Phe Ala Ser Thr Leu
 180 185 190
 Gly Leu Asp Ser Gly Thr Val Thr Ser Ile Val Asp Gly Glu Arg Trp
 195 200 205
 Ala Glu Leu Ile Asp Val Val Ile Gln Asn Pro Ala Ile
 210 215 220

<210> 434

<211> 490

<212> PRT

<213> Chlamydia trachomatis serovar D

<400> 434

Met Ser Asp Leu Ser Asp Leu Phe Lys Thr His Phe Thr Gln Tyr Ala
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 Ser Tyr Val Ile Leu Glu Arg Ala Ile Pro His Val Leu Asp Gly Leu
 20 25 30
 Lys Pro Val Gln Arg Arg Leu Leu Trp Thr Leu Phe Arg Met Asp Asp
 35 40 45
 Gly Lys Met His Lys Val Ala Asn Ile Ala Gly Arg Thr Met Ala Leu
 50 55 60
 His Pro His Gly Asp Ala Pro Ile Val Glu Ala Leu Val Val Leu Ala
 65 70 75 80
 Asn Lys Gly Phe Leu Ile Glu Thr Gln Gly Asn Phe Gly Asn Pro Leu
 85 90 95
 Thr Gly Asp Pro His Ala Ala Ala Arg Tyr Ile Glu Ala Arg Leu Ser
 100 105 110
 Pro Leu Ala Lys Glu Val Leu Phe Asn Thr Asp Leu Met Thr Phe His
 115 120 125
 Asp Ser Tyr Asp Gly Arg Glu Gln Glu Pro Asp Ile Leu Ala Ala Lys
 130 135 140
 Ile Pro Leu Leu Leu Leu His Gly Val Asp Gly Ile Ala Val Gly Met
 145 150 155 160
 Thr Thr Lys Ile Phe Pro His Asn Phe Cys Asp Leu Leu Glu Ala Gln
 165 170 175
 Ile Ala Ile Leu Asn Asp Gln Pro Phe Ser Leu Leu Pro Asp Phe Pro
 180 185 190

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Gly | Gly | Thr | Met | Asp | Ala | Ser | Asp | Tyr | Gln | Asp | Gly | Leu | Gly | Ser |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Ile | Val | Leu | Arg | Ala | Thr | Ile | Asp | Ile | Ile | Asn | Asp | Lys | Thr | Leu | Leu |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Ile | Lys | Glu | Ile | Cys | Pro | Ser | Thr | Thr | Thr | Glu | Thr | Leu | Ile | Arg | Ser |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Ile | Glu | Asn | Ala | Ala | Lys | Arg | Gly | Ile | Ile | Lys | Ile | Asp | Ser | Ile | Gln |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Asp | Phe | Ser | Thr | Asp | Leu | Pro | His | Ile | Glu | Ile | Lys | Leu | Pro | Lys | Gly |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Ile | Tyr | Ala | Lys | Asp | Leu | Leu | Arg | Pro | Leu | Tyr | Thr | His | Thr | Glu | Cys |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Gln | Val | Ile | Leu | Thr | Ser | Arg | Pro | Thr | Ala | Ile | Tyr | Gln | Gly | Lys | Pro |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Trp | Glu | Thr | Thr | Ile | Ser | Glu | Ile | Leu | Arg | Leu | Gln | Thr | Lys | Thr | Leu |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Gln | Asn | Tyr | Leu | Lys | Lys | Glu | Leu | Leu | Ile | Leu | Glu | Asp | Ser | Leu | Ser |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Arg | Glu | Leu | Tyr | His | Lys | Thr | Leu | Glu | Tyr | Leu | Phe | Ile | Lys | His | Lys |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Leu | Tyr | Asp | Thr | Val | Arg | Ser | Met | Leu | Ser | Lys | Arg | Lys | Thr | Ser | Pro |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Ser | Ser | Ser | Thr | Ile | His | Asn | Ala | Val | Leu | Glu | Ala | Leu | Thr | Pro | Phe |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Leu | Asp | Thr | Leu | Pro | Ala | Pro | Asp | Lys | Gln | Ala | Thr | Ala | Gln | Leu | Ala |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Ala | Leu | Thr | Ile | Lys | Lys | Ile | Leu | Cys | Phe | Asp | Glu | Asn | Ser | Tyr | Glu |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Lys | Glu | Leu | Ala | Cys | Leu | Glu | Lys | Lys | Arg | Ser | Ser | Val | Gln | Lys | Asp |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Leu | Ser | Gln | Leu | Lys | Lys | Tyr | Thr | Val | Leu | Tyr | Ile | Lys | Lys | Leu | Leu |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Glu | Thr | Tyr | Arg | Gln | Leu | Gly | His | Arg | Lys | Thr | Lys | Ile | Ala | Lys | Phe |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Asp | Asp | Leu | Pro | Thr | Glu | Arg | Val | Ser | Ala | His | Lys | Lys | Ala | Lys | Glu |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Leu | Ala | Ala | Leu | Asp | Gln | Glu | Glu | Asn | Phe | | | | | | |
| | | | | 485 | | | | | 490 | | | | | | |

<210> 435
 <211> 78
 <212> PRT
 <213> Chlamydia trachomatis serovar D

<400> 435
 Met Lys Glu Phe Leu Ala Tyr Ile Val Lys Asn Leu Val Asp Lys Pro
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 Glu Glu Val His Leu Lys Glu Val Gln Gly Thr Asn Thr Ile Ile Tyr
 20 25 30
 Glu Leu Thr Val Ala Lys Gly Asp Ile Gly Lys Ile Ile Gly Lys Glu
 35 40 45
 Gly Arg Thr Ile Lys Ala Ile Arg Thr Leu Leu Val Ser Val Ala Ser
 50 55 60
 Arg Asp Asn Val Lys Val Ser Leu Glu Ile Met Glu Glu Arg
 65 70 75

<210> 436
 <211> 647
 <212> PRT
 <213> Chlamydia trachomatis serovar D

<400> 436
 Met Glu Ser Gly Pro Glu Ser Val Ser Ser Asn Gln Ser Ser Met Asn
 5 10 15
 Pro Ile Ile Asn Gly Gln Ile Ala Ser Asn Ser Glu Thr Lys Glu Ser
 20 25 30
 Thr Lys Glu Ser Glu Ala Ser Pro Ser Ala Ser Ser Ser Val Ser Ser
 35 40 45
 Trp Ser Phe Leu Ser Ser Ala Lys His Ala Leu Ile Ser Leu Arg Asp
 50 55 60
 Ala Ile Leu Asn Lys Asn Ser Ser Pro Thr Asp Ser Leu Ser Gln Leu
 65 70 75 80
 Glu Ala Ser Thr Ser Thr Ser Thr Val Thr Arg Val Ala Ala Arg Asp
 85 90 95
 Tyr Asn Glu Ala Lys Ser Asn Phe Asp Thr Ala Lys Ser Gly Leu Glu
 100 105 110
 Asn Ala Thr Thr Leu Ala Glu Tyr Glu Thr Lys Met Ala Asp Leu Met
 115 120 125
 Ala Ala Leu Gln Asp Met Glu Arg Leu Ala Lys Gln Lys Ala Glu Val
 130 135 140

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| | | | | | | | | | | | | | | | |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Thr 145 | Arg | Ile | Lys | Glu | Ala 150 | Leu | Gln | Glu | Lys | Gln 155 | Glu | Val | Ile | Asp | Lys 160 |
| Leu | Asn | Gln | Leu | Val 165 | Lys | Leu | Glu | Lys | Gln 170 | Asn | Gln | Thr | Leu | Lys 175 | Glu |
| Thr | Leu | Thr | Thr 180 | Thr | Asp | Ser | Ala | Asp 185 | Gln | Ile | Pro | Ala | Ile 190 | Asn | Ser |
| Gln | Leu | Glu 195 | Ile | Asn | Lys | Asn | Ser 200 | Ala | Asp | Gln | Ile | Ile 205 | Lys | Asp | Leu |
| Glu | Gly 210 | Gln | Asn | Ile | Ser | Tyr 215 | Glu | Ala | Val | Leu | Thr 220 | Asn | Ala | Gly | Glu |
| Val 225 | Ile | Lys | Ala | Ser | Ser 230 | Glu | Ala | Gly | Ile | Lys 235 | Leu | Gly | Gln | Ala | Leu 240 |
| Gln | Ser | Ile | Val | Asp 245 | Ala | Gly | Asp | Gln | Ser 250 | Gln | Ala | Ala | Val | Leu 255 | Gln |
| Ala | Gln | Gln | Asn 260 | Asn | Ser | Pro | Asp | Asn 265 | Ile | Ala | Ala | Thr | Lys 270 | Lys | Leu |
| Ile | Asp | Ala 275 | Ala | Glu | Thr | Lys | Val 280 | Asn | Glu | Leu | Lys | Gln 285 | Glu | His | Thr |
| Gly | Leu 290 | Thr | Asp | Ser | Pro | Leu 295 | Val | Lys | Lys | Ala | Glu 300 | Glu | Gln | Ile | Ser |
| Gln 305 | Ala | Gln | Lys | Asp | Ile 310 | Gln | Glu | Ile | Lys | Pro 315 | Ser | Gly | Ser | Asp | Ile 320 |
| Pro | Ile | Val | Gly | Pro 325 | Ser | Gly | Ser | Ala | Ala 330 | Ser | Ala | Gly | Ser | Ala 335 | Val |
| Gly | Ala | Leu | Lys 340 | Ser | Ser | Asn | Asn | Ser 345 | Gly | Arg | Ile | Ser | Leu 350 | Leu | Leu |
| Asp | Asp | Val 355 | Asp | Asn | Glu | Met | Ala 360 | Ala | Ile | Ala | Met | Gln 365 | Gly | Phe | Arg |
| Ser | Met 370 | Ile | Glu | Gln | Phe | Asn 375 | Val | Asn | Asn | Pro | Ala 380 | Thr | Ala | Lys | Glu |
| Leu 385 | Gln | Ala | Met | Glu | Ala 390 | Gln | Leu | Thr | Ala | Met 395 | Ser | Asp | Gln | Leu | Val 400 |
| Gly | Ala | Asp | Gly | Glu 405 | Leu | Pro | Ala | Glu | Ile 410 | Gln | Ala | Ile | Lys | Asp 415 | Ala |
| Leu | Ala | Gln | Ala 420 | Leu | Lys | Gln | Pro | Ser 425 | Thr | Asp | Gly | Leu | Ala 430 | Thr | Ala |
| Met | Gly | Gln 435 | Val | Ala | Phe | Ala | Ala 440 | Ala | Lys | Val | Gly | Gly 445 | Gly | Ser | Ala |

Gly Thr Ala Gly Thr Val Gln Met Asn Val Lys Gln Leu Tyr Lys Thr
 450 455 460
 Ala Phe Ser Ser Thr Ser Ser Ser Ser Tyr Ala Ala Ala Leu Ser Asp
 465 470 475 480
 Gly Tyr Ser Ala Tyr Lys Thr Leu Asn Ser Leu Tyr Ser Glu Ser Arg
 485 490 495
 Ser Gly Val Gln Ser Ala Ile Ser Gln Thr Ala Asn Pro Ala Leu Ser
 500 505 510
 Arg Ser Val Ser Arg Ser Gly Ile Glu Ser Gln Gly Arg Ser Ala Asp
 515 520 525
 Ala Ser Gln Arg Ala Ala Glu Thr Ile Val Arg Asp Ser Gln Thr Leu
 530 535 540
 Gly Asp Val Tyr Ser Arg Leu Gln Val Leu Asp Ser Leu Met Ser Thr
 545 550 555 560
 Ile Val Ser Asn Pro Gln Val Asn Gln Glu Glu Ile Met Gln Lys Leu
 565 570 575
 Thr Ala Ser Ile Ser Lys Ala Pro Gln Phe Gly Tyr Pro Ala Val Gln
 580 585 590
 Asn Ser Ala Asp Ser Leu Gln Lys Phe Ala Ala Gln Leu Glu Arg Glu
 595 600 605
 Phe Val Asp Gly Glu Arg Ser Leu Ala Glu Ser Arg Glu Asn Ala Phe
 610 615 620
 Arg Lys Gln Pro Ala Phe Ile Gln Gln Val Leu Val Asn Ile Ala Ser
 625 630 635 640
 Leu Phe Ser Gly Tyr Leu Ser
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<210> 437

<211> 231

<212> PRT

<213> Chlamydia trachomatis serovar D

<400> 437

Met Met Glu Val Phe Met Asn Phe Leu Asp Gln Leu Asp Leu Ile Ile
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 Gln Asn Lys His Met Leu Glu His Thr Phe Tyr Val Lys Trp Ser Lys
 20 25 30
 Gly Glu Leu Thr Lys Glu Gln Leu Gln Ala Tyr Ala Lys Asp Tyr Tyr
 35 40 45
 Leu His Ile Lys Ala Phe Pro Lys Tyr Leu Ser Ala Ile His Ser Arg
 50 55 60

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Cys Asp Asp Leu Glu Ala Arg Lys Leu Leu Leu Asp Asn Leu Met Asp
 65 70 75 80
 Glu Glu Asn Gly Tyr Pro Asn His Ile Asp Leu Trp Lys Gln Phe Val
 85 90 95
 Phe Ala Leu Gly Val Thr Pro Glu Glu Leu Glu Ala His Glu Pro Ser
 100 105 110
 Glu Ala Ala Lys Ala Lys Val Ala Thr Phe Met Arg Trp Cys Thr Gly
 115 120 125
 Asp Ser Leu Ala Ala Gly Val Ala Ala Leu Tyr Ser Tyr Glu Ser Gln
 130 135 140
 Ile Pro Arg Ile Ala Arg Glu Lys Ile Arg Gly Leu Thr Glu Tyr Phe
 145 150 155 160
 Gly Phe Ser Asn Pro Glu Asp Tyr Ala Tyr Phe Thr Glu His Glu Glu
 165 170 175
 Ala Asp Val Arg His Ala Arg Glu Glu Lys Ala Leu Ile Glu Met Leu
 180 185 190
 Leu Lys Asp Asp Ala Asp Lys Val Leu Glu Ala Ser Gln Glu Val Thr
 195 200 205
 Gln Ser Leu Tyr Gly Phe Leu Asp Ser Phe Leu Asp Pro Gly Thr Cys
 210 215 220
 Cys Ser Cys His Gln Ser Tyr
 225 230

<210> 438

<211> 533

<212> PRT

<213> Chlamydia trachomatis serovar D

<400> 438

Met Ser Asn Ser Phe Arg Asp Gln Glu Gln Gly Leu Gln Ala Val Phe
 5 10 15
 Arg Ala Ala Arg Val Ile Ser His Met Phe Ser Gln Thr Ile Gly Pro
 20 25 30
 Tyr Gly Phe Ser Thr Ile Val His Asn Val Gln Asp Thr Arg Thr Thr
 35 40 45
 Gln Asp Ser Gln Ser Met Leu Lys Asp Ile Leu Phe Pro Asp Val Phe
 50 55 60
 Glu Asn Ile Gly Met Lys Leu Ile Arg Asp Thr Ala Leu Arg Thr Arg
 65 70 75 80
 Met Arg Phe Gly Asp Gly Ala Lys Thr Thr Ala Leu Leu Ile Glu Ala

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| 85 | | | | | | | | | | 90 | | | | | 95 | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|
| Leu | Leu | Ala | Glu | Gly | Met | Thr | Gly | Ile | Gln | Lys | Gly | Leu | Asp | Pro | His | | | | |
| | | | 100 | | | | | 105 | | | | | 110 | | | | | | |
| Glu | Ile | His | Arg | Gly | Met | Leu | Leu | Ala | Glu | Lys | Lys | Ile | Gln | Glu | Val | | | | |
| | | 115 | | | | | 120 | | | | | 125 | | | | | | | |
| Phe | Tyr | Arg | Glu | Thr | Phe | Pro | Leu | Ser | Asp | Leu | Glu | His | Thr | Val | Tyr | | | | |
| | 130 | | | | | 135 | | | | | 140 | | | | | | | | |
| Val | Ser | Ser | Ile | Ala | Arg | Arg | Cys | Asn | Ser | Glu | Ile | Ala | Ser | Val | Leu | | | | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | | | | |
| Ser | Ser | Ala | Val | Gly | Tyr | Gly | Gly | Lys | Asn | Gly | Tyr | Tyr | Ile | Val | Glu | | | | |
| | | | | 165 | | | | | 170 | | | | | 175 | | | | | |
| Glu | His | Glu | Glu | His | Glu | Thr | Tyr | Trp | His | Ala | Glu | Glu | His | Ala | Val | | | | |
| | | | 180 | | | | | 185 | | | | | 190 | | | | | | |
| Trp | Asp | Phe | Gly | Tyr | Ala | Ser | Pro | Tyr | Phe | Ile | Thr | His | Ala | Glu | Thr | | | | |
| | 195 | | | | | | 200 | | | | | 205 | | | | | | | |
| Gly | Thr | Val | Glu | Tyr | Ser | Gln | Val | Tyr | Ile | Leu | Val | Ser | Glu | Gln | Pro | | | | |
| | 210 | | | | | 215 | | | | | 220 | | | | | | | | |
| Leu | His | Tyr | Ser | Asn | Pro | Ser | Phe | Leu | Thr | Phe | Leu | Gln | Ser | Val | Val | | | | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | | | | |
| Gln | Ala | Gly | Lys | Thr | Pro | Leu | Val | Ile | Leu | Ala | Glu | Ala | Phe | Asp | Lys | | | | |
| | | | | 245 | | | | 250 | | | | | | 255 | | | | | |
| Glu | Leu | Leu | Ala | Met | Leu | Glu | Met | Asn | Gln | Ile | Glu | Arg | Val | Phe | Pro | | | | |
| | | | 260 | | | | | 265 | | | | | 270 | | | | | | |
| Val | Cys | Ala | Val | Lys | Val | Ser | Gly | Lys | His | Ala | Arg | Glu | Ser | Leu | Glu | | | | |
| | | 275 | | | | | 280 | | | | | 285 | | | | | | | |
| Asp | Ile | Ala | Val | Leu | Thr | Gly | Ala | Thr | Leu | Leu | Ser | Glu | Met | Asp | Phe | | | | |
| | 290 | | | | | 295 | | | | | 300 | | | | | | | | |
| Glu | Asp | Ser | Glu | Glu | Glu | Arg | Ile | Thr | Asn | Arg | Leu | Gly | Phe | Val | Ala | | | | |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 | | | | |
| Gly | Ile | Cys | Val | Ser | Ser | Thr | Ser | Leu | Cys | Val | Pro | Arg | Glu | Thr | Asp | | | | |
| | | | 325 | | | | | 330 | | | | | | 335 | | | | | |
| Asn | Lys | Gln | Arg | Met | Ala | Glu | His | Cys | Ala | Phe | Leu | Gln | Asp | Lys | Leu | | | | |
| | | | 340 | | | | | 345 | | | | | 350 | | | | | | |
| Ser | Phe | Ser | Gln | Glu | Glu | Glu | Ala | Ser | Ala | Arg | Leu | Arg | Arg | Arg | Leu | | | | |
| | | 355 | | | | | 360 | | | | | 365 | | | | | | | |
| Ala | Arg | Leu | Ser | Ser | Gly | Glu | Val | Cys | Ile | His | Ile | Ala | Ala | Asp | Cys | | | | |
| | 370 | | | | | 375 | | | | | 380 | | | | | | | | |
| Ile | Pro | Gln | Glu | Glu | Ile | Gly | Tyr | Ile | Thr | Ser | Ser | Ile | Arg | Ala | Met | | | | |

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| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Gly | Ser | Leu | Ile | Ser | Ser | Thr | Glu | Val | Lys | Ile | Leu | Gly | Glu | Asn |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Pro | Ser | Val | Ile | Lys | Ala | His | Ser | Ile | Ile | Leu | Ala | Thr | Gly | Ser | Glu |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Pro | Arg | Ala | Phe | Pro | Gly | Ile | Pro | Phe | Ser | Ala | Glu | Ser | Pro | Arg | Ile |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Leu | Cys | Ser | Thr | Gly | Val | Leu | Asn | Leu | Lys | Glu | Ile | Pro | Gln | Lys | Met |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Ala | Ile | Ile | Gly | Gly | Gly | Val | Ile | Gly | Cys | Glu | Phe | Ala | Ser | Leu | Phe |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| His | Thr | Leu | Gly | Ser | Glu | Val | Ser | Val | Ile | Glu | Ala | Ser | Ser | Gln | Ile |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Leu | Ala | Leu | Asn | Asn | Pro | Asp | Ile | Ser | Lys | Thr | Met | Phe | Asp | Lys | Phe |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Thr | Arg | Gln | Gly | Leu | Arg | Phe | Val | Leu | Glu | Ala | Ser | Val | Ser | Asn | Ile |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Glu | Asp | Ile | Gly | Asp | Arg | Val | Arg | Leu | Thr | Ile | Asn | Gly | Asn | Val | Glu |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Glu | Tyr | Asp | Tyr | Val | Leu | Val | Ser | Ile | Gly | Arg | Arg | Leu | Asn | Thr | Glu |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Asn | Ile | Gly | Leu | Asp | Lys | Ala | Gly | Val | Ile | Cys | Asp | Glu | Arg | Gly | Val |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Ile | Pro | Thr | Asp | Ala | Thr | Met | Arg | Thr | Asn | Val | Pro | Asn | Ile | Tyr | Ala |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Ile | Gly | Asp | Ile | Thr | Gly | Lys | Trp | Gln | Leu | Ala | His | Val | Ala | Ser | His |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Gln | Gly | Ile | Ile | Ala | Ala | Arg | Asn | Ile | Ala | Gly | His | Lys | Glu | Glu | Ile |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Asp | Tyr | Ser | Ala | Val | Pro | Ser | Val | Ile | Phe | Thr | Phe | Pro | Glu | Val | Ala |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Ser | Val | Gly | Leu | Ser | Pro | Thr | Ala | Ala | Gln | Gln | Gln | Lys | Ile | Pro | Val |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Lys | Val | Thr | Lys | Phe | Pro | Phe | Arg | Ala | Ile | Gly | Lys | Ala | Val | Ala | Met |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Gly | Glu | Ala | Asp | Gly | Phe | Ala | Ala | Ile | Ile | Ser | His | Glu | Thr | Thr | Gln |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Gln | Ile | Leu | Gly | Ala | Tyr | Val | Ile | Gly | Pro | His | Ala | Ser | Ser | Leu | Ile |
| | | | | 405 | | | | | 410 | | | | | 415 | |

Ser Glu Ile Thr Leu Ala Val Arg Asn Glu Leu Thr Leu Pro Cys Ile
420 425 430

Tyr Glu Thr Ile His Ala His Pro Thr Leu Ala Glu Val Trp Ala Glu
435 440 445

Ser Ala Leu Leu Ala Val Asp Thr Pro Leu His Met Pro Pro Ala Lys
450 455 460

Lys
465

<210> 440

<211> 122

<212> PRT

<213> Chlamydia trachomatis serovar D

<400> 440

Met Pro Arg Ile Ile Gly Ile Asp Ile Pro Ala Lys Lys Lys Leu Lys
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Ile Ser Leu Thr Tyr Ile Tyr Gly Ile Gly Pro Ala Leu Ser Lys Glu
20 25 30

Ile Ile Ala Arg Leu Gln Leu Asn Pro Glu Ala Arg Ala Ala Glu Leu
35 40 45

Thr Glu Glu Glu Val Gly Arg Leu Asn Ala Leu Leu Gln Ser Asp Tyr
50 55 60

Val Val Glu Gly Asp Leu Arg Arg Arg Val Gln Ser Asp Ile Lys Arg
65 70 75 80

Leu Ile Thr Ile His Ala Tyr Arg Gly Gln Arg His Arg Leu Ser Leu
85 90 95

Pro Val Arg Gly Gln Arg Thr Lys Thr Asn Ser Arg Thr Arg Lys Gly
100 105 110

Lys Arg Lys Thr Val Ala Gly Lys Lys Lys
115 120

<210> 441

<211> 553

<212> PRT

<213> Chlamydia trachomatis serovar D

<400> 441

Met Arg Ile Gly Asp Pro Met Asn Lys Leu Ile Arg Arg Ala Val Thr
5 10 15

Ile Phe Ala Val Thr Ser Val Ala Ser Leu Phe Ala Ser Gly Val Leu
20 25 30

Glu Thr Ser Met Ala Glu Ser Leu Ser Thr Asn Val Ile Ser Leu Ala

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| | 35 | | 40 | | 45 | | | | | | | | | | | | |
| Asp | Thr | Lys | Ala | Lys | Asp | Asn | Thr | Ser | His | Lys | Ser | Lys | Lys | Ala | Arg | | |
| | 50 | | | | | 55 | | | | | 60 | | | | | | |
| Lys | Asn | His | Ser | Lys | Glu | Thr | Pro | Val | Asp | Arg | Lys | Glu | Val | Ala | Pro | | |
| | 65 | | | | 70 | | | | | 75 | | | | | 80 | | |
| Val | His | Glu | Ser | Lys | Ala | Thr | Gly | Pro | Lys | Gln | Asp | Ser | Cys | Phe | Gly | | |
| | | | | 85 | | | | | 90 | | | | | 95 | | | |
| Arg | Met | Tyr | Thr | Val | Lys | Val | Asn | Asp | Asp | Arg | Asn | Val | Glu | Ile | Thr | | |
| | | | 100 | | | | | 105 | | | | | 110 | | | | |
| Gln | Ala | Val | Pro | Glu | Tyr | Ala | Thr | Val | Gly | Ser | Pro | Tyr | Pro | Ile | Glu | | |
| | | 115 | | | | | 120 | | | | | 125 | | | | | |
| Ile | Thr | Ala | Thr | Gly | Lys | Arg | Asp | Cys | Val | Asp | Val | Ile | Ile | Thr | Gln | | |
| | 130 | | | | | 135 | | | | | 140 | | | | | | |
| Gln | Leu | Pro | Cys | Glu | Ala | Glu | Phe | Val | Arg | Ser | Asp | Pro | Ala | Thr | Thr | | |
| | 145 | | | | 150 | | | | | 155 | | | | | 160 | | |
| Pro | Thr | Ala | Asp | Gly | Lys | Leu | Val | Trp | Lys | Ile | Asp | Arg | Leu | Gly | Gln | | |
| | | | | 165 | | | | | 170 | | | | | 175 | | | |
| Gly | Glu | Lys | Ser | Lys | Ile | Thr | Val | Trp | Val | Lys | Pro | Leu | Lys | Glu | Gly | | |
| | | | 180 | | | | | 185 | | | | | 190 | | | | |
| Cys | Cys | Phe | Thr | Ala | Ala | Thr | Val | Cys | Ala | Cys | Pro | Glu | Ile | Arg | Ser | | |
| | | 195 | | | | | 200 | | | | | 205 | | | | | |
| Val | Thr | Lys | Cys | Gly | Gln | Pro | Ala | Ile | Cys | Val | Lys | Gln | Glu | Gly | Pro | | |
| | 210 | | | | | 215 | | | | | 220 | | | | | | |
| Glu | Asn | Ala | Cys | Leu | Arg | Cys | Pro | Val | Val | Tyr | Lys | Ile | Asn | Ile | Val | | |
| | 225 | | | | 230 | | | | | 235 | | | | | 240 | | |
| Asn | Gln | Gly | Thr | Ala | Thr | Ala | Arg | Asn | Val | Val | Val | Glu | Asn | Pro | Val | | |
| | | | | 245 | | | | | 250 | | | | | 255 | | | |
| Pro | Asp | Gly | Tyr | Ala | His | Ser | Ser | Gly | Gln | Arg | Val | Leu | Thr | Phe | Thr | | |
| | | | 260 | | | | | 265 | | | | | 270 | | | | |
| Leu | Gly | Asp | Met | Gln | Pro | Gly | Glu | His | Arg | Thr | Ile | Thr | Val | Glu | Phe | | |
| | 275 | | | | | | 280 | | | | | 285 | | | | | |
| Cys | Pro | Leu | Lys | Arg | Gly | Arg | Ala | Thr | Asn | Ile | Ala | Thr | Val | Ser | Tyr | | |
| | 290 | | | | | 295 | | | | | 300 | | | | | | |
| Cys | Gly | Gly | His | Lys | Asn | Thr | Ala | Ser | Val | Thr | Thr | Val | Ile | Asn | Glu | | |
| | 305 | | | | 310 | | | | | 315 | | | | | 320 | | |
| Pro | Cys | Val | Gln | Val | Ser | Ile | Ala | Gly | Ala | Asp | Trp | Ser | Tyr | Val | Cys | | |
| | | | | 325 | | | | | 330 | | | | | 335 | | | |
| Lys | Pro | Val | Glu | Tyr | Val | Ile | Ser | Val | Ser | Asn | Pro | Gly | Asp | Leu | Val | | |

340 345 350
 Leu Arg Asp Val Val Val Glu Asp Thr Leu Ser Pro Gly Val Thr Val
 355 360 365
 Leu Glu Ala Ala Gly Ala Gln Ile Ser Cys Asn Lys Val Val Trp Thr
 370 375 380
 Val Lys Glu Leu Asn Pro Gly Glu Ser Leu Gln Tyr Lys Val Leu Val
 385 390 395 400
 Arg Ala Gln Thr Pro Gly Gln Phe Thr Asn Asn Val Val Val Lys Ser
 405 410 415
 Cys Ser Asp Cys Gly Thr Cys Thr Ser Cys Ala Glu Ala Thr Thr Tyr
 420 425 430
 Trp Lys Gly Val Ala Ala Thr His Met Cys Val Val Asp Thr Cys Asp
 435 440 445
 Pro Val Cys Val Gly Glu Asn Thr Val Tyr Arg Ile Cys Val Thr Asn
 450 455 460
 Arg Gly Ser Ala Glu Asp Thr Asn Val Ser Leu Met Leu Lys Phe Ser
 465 470 475 480
 Lys Glu Leu Gln Pro Val Ser Phe Ser Gly Pro Thr Lys Gly Thr Ile
 485 490 495
 Thr Gly Asn Thr Val Val Phe Asp Ser Leu Pro Arg Leu Gly Ser Lys
 500 505 510
 Glu Thr Val Glu Phe Ser Val Thr Leu Lys Ala Val Ser Ala Gly Asp
 515 520 525
 Ala Arg Gly Glu Ala Ile Leu Ser Ser Asp Thr Leu Thr Val Pro Val
 530 535 540
 Ser Asp Thr Glu Asn Thr His Ile Tyr
 545 550

<210> 442

<211> 192

<212> PRT

<213> Chlamydia trachomatis serovar D

<400> 442

Met Pro Glu Gly Glu Met Met His Lys Leu Gln Asp Val Ile Asp Arg
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Lys Leu Leu Asp Ser Arg Arg Ile Phe Phe Ser Glu Pro Val Thr Glu
 20 25 30

Lys Ser Ala Thr Glu Ala Ile Lys Lys Leu Trp Tyr Leu Glu Leu Thr
 35 40 45

008413304304

Met Glu Phe Gly Leu Leu Asp Gly Ile Leu Phe Ser Phe Asn Asp Leu
180 185 190

Val Asp Met Thr Leu Pro Asp Trp Lys Lys Ala Glu Arg Lys Leu Thr
115 120 125

His Val Leu Pro Gly Met Pro Glu Gln Val Phe Phe Ile Asp Thr Gly
 130 135 140
 Val Pro His Val Val Val Phe Val Ser Asp Leu Ser Lys Val Pro Val
 145 150 155 160
 Gln Glu Trp Gly Ser Phe Leu Arg Tyr His Glu Asp Phe Ala Pro Glu
 165 170 175
 Gly Val Asn Val Asp Phe Val Gln Arg Lys Lys Asp Asp Leu Leu Leu
 180 185 190
 Val Tyr Thr Tyr Glu Arg Gly Cys Glu Arg Glu Thr Leu Ser Cys Gly
 195 200 205
 Thr Gly Met Leu Ala Ser Ala Leu Val Ala Ala Asp Ile Phe Ser Leu
 210 215 220
 Gly Gln Asp Phe Ser Ile Ala Val Cys Ser Arg Ser Arg Asn Leu Ile
 225 230 235 240
 Lys Ile Phe Ser Glu Lys Gly Lys Val Phe Leu Glu Gly Pro Val Ser
 245 250 255
 Leu Leu Asn Arg Ser Glu Asn Phe Gly Trp Leu Glu Pro Lys Ser Arg
 260 265 270
 Arg Phe Gly
 275

<210> 444
 <211> 1770
 <212> PRT
 <213> Chlamydia trachomatis serovar D

<400> 444
 Met Lys Phe Met Ser Ala Thr Ala Val Phe Ala Ala Ala Leu Ser Ser
 5 10 15
 Val Thr Glu Ala Ser Ser Ile Gln Asp Gln Ile Lys Asn Thr Asp Cys
 20 25 30
 Asn Val Ser Lys Leu Gly Tyr Ser Thr Ser Gln Ala Phe Thr Asp Met
 35 40 45
 Met Leu Ala Asp Asn Thr Glu Tyr Arg Ala Ala Asp Ser Val Ser Phe
 50 55 60
 Tyr Asp Phe Ser Thr Ser Ser Arg Leu Pro Arg Lys His Leu Ser Ser
 65 70 75 80
 Ser Ser Glu Ala Ser Pro Thr Thr Glu Gly Val Ser Ser Ser Ser Ser
 85 90 95
 Gly Glu Thr Asp Glu Lys Thr Glu Glu Glu Leu Asp Asn Gly Gly Ile

| | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|
| | | 100 | | | | | | 105 | | | | | | 110 | | | | | |
| Ile | Tyr | Ala | Arg | Glu | Lys | Leu | Thr | Ile | Ser | Glu | Ser | Gln | Asp | Ser | Leu | | | | |
| | | 115 | | | | | 120 | | | | | 125 | | | | | | | |
| Ser | Asn | Gln | Ser | Ile | Glu | Leu | His | Asp | Asn | Ser | Ile | Phe | Phe | Gly | Glu | | | | |
| | 130 | | | | | 135 | | | | | 140 | | | | | | | | |
| Gly | Glu | Val | Ile | Phe | Asp | His | Arg | Val | Ala | Leu | Lys | Asn | Gly | Gly | Ala | | | | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | | | | |
| Ile | Tyr | Gly | Glu | Lys | Glu | Val | Val | Phe | Glu | Asn | Ile | Lys | Ser | Leu | Leu | | | | |
| | | | | 165 | | | | | 170 | | | | | 175 | | | | | |
| Val | Glu | Val | Asn | Ile | Ala | Val | Glu | Lys | Gly | Gly | Ser | Val | Tyr | Ala | Lys | | | | |
| | | | 180 | | | | | 185 | | | | | 190 | | | | | | |
| Glu | Arg | Val | Ser | Leu | Glu | Asn | Val | Thr | Glu | Ala | Thr | Phe | Ser | Ser | Asn | | | | |
| | | 195 | | | | | 200 | | | | | 205 | | | | | | | |
| Gly | Gly | Glu | Gln | Gly | Gly | Gly | Gly | Ile | Tyr | Ser | Glu | Gln | Asp | Met | Leu | | | | |
| | 210 | | | | | 215 | | | | | 220 | | | | | | | | |
| Ile | Ser | Asp | Cys | Asn | Asn | Val | His | Phe | Gln | Gly | Asn | Ala | Ala | Gly | Ala | | | | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | | | | |
| Thr | Ala | Val | Lys | Gln | Cys | Leu | Asp | Glu | Glu | Met | Ile | Val | Leu | Leu | Ala | | | | |
| | | | | 245 | | | | | 250 | | | | | 255 | | | | | |
| Glu | Cys | Val | Asp | Ser | Leu | Ser | Glu | Asp | Thr | Leu | Asp | Ser | Thr | Pro | Glu | | | | |
| | | | 260 | | | | | 265 | | | | | 270 | | | | | | |
| Thr | Glu | Gln | Thr | Glu | Ser | Asn | Gly | Asn | Gln | Asp | Gly | Ser | Ser | Glu | Thr | | | | |
| | | 275 | | | | | 280 | | | | | 285 | | | | | | | |
| Glu | Asp | Thr | Gln | Val | Ser | Glu | Ser | Pro | Glu | Ser | Thr | Pro | Ser | Pro | Asp | | | | |
| | 290 | | | | | 295 | | | | | 300 | | | | | | | | |
| Asp | Val | Leu | Gly | Lys | Gly | Gly | Gly | Ile | Tyr | Thr | Glu | Lys | Ser | Leu | Thr | | | | |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 | | | | |
| Ile | Thr | Gly | Ile | Thr | Gly | Thr | Ile | Asp | Phe | Val | Ser | Asn | Ile | Ala | Thr | | | | |
| | | | | 325 | | | | | 330 | | | | | 335 | | | | | |
| Asp | Ser | Gly | Ala | Gly | Val | Phe | Thr | Lys | Glu | Asn | Leu | Ser | Cys | Thr | Asn | | | | |
| | | | 340 | | | | | 345 | | | | | 350 | | | | | | |
| Thr | Asn | Ser | Leu | Gln | Phe | Leu | Lys | Asn | Ser | Ala | Gly | Gln | His | Gly | Gly | | | | |
| | | 355 | | | | | 360 | | | | | 365 | | | | | | | |
| Gly | Ala | Tyr | Val | Thr | Gln | Thr | Met | Ser | Val | Thr | Asn | Thr | Thr | Ser | Glu | | | | |
| | 370 | | | | | 375 | | | | | 380 | | | | | | | | |
| Ser | Ile | Thr | Thr | Pro | Pro | Leu | Ile | Gly | Glu | Val | Ile | Phe | Ser | Glu | Asn | | | | |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 | | | | |
| Thr | Ala | Lys | Gly | His | Gly | Gly | Gly | Ile | Cys | Thr | Asn | Lys | Leu | Ser | Leu | | | | |

| 405 | | | | | 410 | | | | | 415 | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Asn | Leu | Lys | Thr | Val | Thr | Leu | Thr | Lys | Asn | Ser | Ala | Lys | Glu | Ser |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Gly | Gly | Ala | Ile | Phe | Thr | Asp | Leu | Ala | Ser | Ile | Pro | Ile | Thr | Asp | Thr |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Pro | Glu | Ser | Ser | Thr | Pro | Ser | Ser | Ser | Ser | Pro | Ala | Ser | Thr | Pro | Glu |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Val | Val | Ala | Ser | Ala | Lys | Ile | Asn | Arg | Phe | Phe | Ala | Ser | Thr | Ala | Lys |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Pro | Ala | Ala | Pro | Ser | Leu | Thr | Glu | Ala | Glu | Ser | Asp | Gln | Thr | Asp | Gln |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Thr | Glu | Thr | Ser | Asp | Thr | Asn | Ser | Asp | Ile | Asp | Val | Ser | Ile | Glu | Asn |
| | | | 500 | | | | | 505 | | | | | 510 | | |
| Ile | Leu | Asn | Val | Ala | Ile | Asn | Gln | Asn | Thr | Ser | Ala | Lys | Lys | Gly | Gly |
| | | 515 | | | | | 520 | | | | | 525 | | | |
| Ala | Ile | Tyr | Gly | Lys | Lys | Ala | Lys | Leu | Ser | Arg | Ile | Asn | Asn | Leu | Glu |
| | 530 | | | | | 535 | | | | | 540 | | | | |
| Leu | Ser | Gly | Asn | Ser | Ser | Gln | Asp | Val | Gly | Gly | Gly | Leu | Cys | Leu | Thr |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 |
| Glu | Ser | Val | Glu | Phe | Asp | Ala | Ile | Gly | Ser | Leu | Leu | Ser | His | Tyr | Asn |
| | | | | 565 | | | | 570 | | | | | | 575 | |
| Ser | Ala | Ala | Lys | Glu | Gly | Gly | Ala | Ile | His | Ser | Lys | Thr | Val | Thr | Leu |
| | | | 580 | | | | | 585 | | | | | 590 | | |
| Ser | Asn | Leu | Lys | Ser | Thr | Phe | Thr | Phe | Ala | Asp | Asn | Thr | Val | Lys | Ala |
| | | 595 | | | | | 600 | | | | | 605 | | | |
| Ile | Val | Glu | Ser | Thr | Pro | Glu | Ala | Pro | Glu | Glu | Ile | Pro | Pro | Val | Glu |
| | 610 | | | | | 615 | | | | | 620 | | | | |
| Gly | Glu | Glu | Ser | Thr | Ala | Thr | Glu | Asp | Pro | Asn | Ser | Asn | Thr | Glu | Gly |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 |
| Ser | Ser | Ala | Asn | Thr | Asn | Leu | Glu | Gly | Ser | Gln | Gly | Asp | Thr | Ala | Asp |
| | | | | 645 | | | | | 650 | | | | | 655 | |
| Thr | Gly | Thr | Gly | Asp | Val | Asn | Asn | Glu | Ser | Gln | Asp | Thr | Ser | Asp | Thr |
| | | | 660 | | | | | 665 | | | | | 670 | | |
| Gly | Asn | Ala | Glu | Ser | Glu | Glu | Gln | Leu | Gln | Asp | Ser | Thr | Gln | Ser | Asn |
| | | 675 | | | | | 680 | | | | | 685 | | | |
| Glu | Glu | Asn | Thr | Leu | Pro | Asn | Ser | Asn | Ile | Asp | Gln | Ser | Asn | Glu | Asn |
| | 690 | | | | | 695 | | | | | 700 | | | | |
| Thr | Asp | Glu | Ser | Ser | Asp | Ser | His | Thr | Glu | Glu | Ile | Thr | Asp | Glu | Ser |

| | | | | | | |
|---|---|-----|--|------|--|------|
| 705 | | 710 | | 715 | | 720 |
| Val Ser Ser Ser | Ser Glu Ser Gly Ser Ser Thr Pro Gln Asp Gly Gly | 725 | | 730 | | 735 |
| Ala Ala Ser Ser | Gly Ala Pro Ser Gly Asp Gln Ser Ile Ser Ala Asn | 740 | | 745 | | 750 |
| Ala Cys Leu Ala Lys Ser Tyr | Ala Ala Ser Thr Asp Ser Ser Pro Val | 755 | | 760 | | 765 |
| Ser Asn Ser Ser Gly Ser Glu Glu Pro Val Thr Ser Ser Ser Asp Ser | | 770 | | 775 | | 780 |
| Asp Val Thr Ala Ser Ser Asp Asn Pro Asp Ser Ser Ser Ser Gly Asp | | 785 | | 790 | | 795 |
| Ser Ala Gly Asp Ser Glu Glu Pro Thr Glu Pro Glu Ala Gly Ser Thr | | 805 | | 810 | | 815 |
| Thr Glu Thr Leu Thr Leu Ile Gly Gly Gly Ala Ile Tyr Gly Glu Thr | | 820 | | 825 | | 830 |
| Val Lys Ile Glu Asn Phe Ser Gly Gln Gly Ile Phe Ser Gly Asn Lys | | 835 | | 840 | | 845 |
| Ala Ile Asp Asn Thr Thr Glu Gly Ser Ser Ser Lys Ser Asp Val Leu | | 850 | | 855 | | 860 |
| Gly Gly Ala Val Tyr Ala Lys Thr Leu Phe Asn Leu Asp Ser Gly Ser | | 865 | | 870 | | 875 |
| Ser Arg Arg Thr Val Thr Phe Ser Gly Asn Thr Val Ser Ser Gln Ser | | 885 | | 890 | | 895 |
| Thr Thr Gly Gln Val Ala Gly Gly Ala Ile Tyr Ser Pro Thr Val Thr | | 900 | | 905 | | 910 |
| Ile Ala Thr Pro Val Val Phe Ser Lys Asn Ser Ala Thr Asn Asn Ala | | 915 | | 920 | | 925 |
| Asn Asn Thr Thr Asp Thr Gln Arg Lys Asp Thr Phe Gly Gly Ala Ile | | 930 | | 935 | | 940 |
| Gly Ala Thr Ser Ala Val Ser Leu Ser Gly Gly Ala His Phe Leu Glu | | 945 | | 950 | | 955 |
| Asn Val Ala Asp Leu Gly Ser Ala Ile Gly Leu Val Pro Gly Thr Gln | | 965 | | 970 | | 975 |
| Asn Thr Glu Thr Val Lys Leu Glu Ser Gly Ser Tyr Tyr Phe Glu Lys | | 980 | | 985 | | 990 |
| Asn Lys Ala Leu Lys Arg Ala Thr Ile Tyr Ala Pro Val Val Ser Ile | | 995 | | 1000 | | 1005 |
| Lys Ala Tyr Thr Ala Thr Phe Asn Gln Asn Arg Ser Leu Glu Glu Gly | | | | | | |

| | | |
|---|------|----------------|
| 1010 | 1015 | 1020 |
| Ser Ala Ile Tyr Phe Thr Lys Glu Ala Ser Ile Glu Ser Leu Gly Ser | | |
| 1025 | 1030 | 1035 1040 |
| Val Leu Phe Thr Gly Asn Leu Val Thr Leu Thr Leu Ser Thr Thr Thr | | |
| | 1045 | 1050 1055 |
| Glu Gly Thr Pro Ala Thr Thr Ser Gly Asp Val Thr Lys Tyr Gly Ala | | |
| | 1060 | 1065 1070 |
| Ala Ile Phe Gly Gln Ile Ala Ser Ser Asn Gly Ser Gln Thr Asp Asn | | |
| | 1075 | 1080 1085 |
| Leu Pro Leu Lys Leu Ile Ala Ser Gly Gly Asn Ile Cys Phe Arg Asn | | |
| | 1090 | 1095 1100 |
| Asn Glu Tyr Arg Pro Thr Ser Ser Asp Thr Gly Thr Ser Thr Phe Cys | | |
| | 1105 | 1110 1115 1120 |
| Ser Ile Ala Gly Asp Val Lys Leu Thr Met Gln Ala Ala Lys Gly Lys | | |
| | 1125 | 1130 1135 |
| Thr Ile Ser Phe Phe Asp Ala Ile Arg Thr Ser Thr Lys Lys Thr Gly | | |
| | 1140 | 1145 1150 |
| Thr Gln Ala Thr Ala Tyr Asp Thr Leu Asp Ile Asn Lys Ser Glu Asp | | |
| | 1155 | 1160 1165 |
| Ser Glu Thr Val Asn Ser Ala Phe Thr Gly Thr Ile Leu Phe Ser Ser | | |
| | 1170 | 1175 1180 |
| Glu Leu His Glu Asn Lys Ser Tyr Ile Pro Gln Asn Val Val Leu His | | |
| | 1185 | 1190 1195 1200 |
| Ser Gly Ser Leu Val Leu Lys Pro Asn Thr Glu Leu His Val Ile Ser | | |
| | 1205 | 1210 1215 |
| Phe Glu Gln Lys Glu Gly Ser Ser Leu Val Met Thr Pro Gly Ser Val | | |
| | 1220 | 1225 1230 |
| Leu Ser Asn Gln Thr Val Ala Asp Gly Ala Leu Val Ile Asn Asn Met | | |
| | 1235 | 1240 1245 |
| Thr Ile Asp Leu Ser Ser Val Glu Lys Asn Gly Ile Ala Glu Gly Asn | | |
| | 1250 | 1255 1260 |
| Ile Phe Thr Pro Pro Glu Leu Arg Ile Ile Asp Thr Thr Thr Gly Gly | | |
| | 1265 | 1270 1275 1280 |
| Ser Gly Gly Thr Pro Ser Thr Asp Ser Glu Ser Asn Gln Asn Ser Asp | | |
| | 1285 | 1290 1295 |
| Asp Thr Glu Glu Gln Asn Asn Asn Asp Ala Ser Asn Gln Gly Glu Ser | | |
| | 1300 | 1305 1310 |
| Ala Asn Gly Ser Ser Ser Pro Ala Val Ala Ala Ala His Thr Ser Arg | | |

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| | | |
|---|------|-----------|
| 1315 | 1320 | 1325 |
| Thr Arg Asn Phe Ala Ala Ala Thr Ala Thr Pro Thr Thr Thr Pro | | |
| 1330 | 1335 | 1340 |
| Thr Ala Thr Thr Thr Thr Ser Asn Gln Val Ile Leu Gly Gly Glu Ile | | |
| 1345 | 1350 | 1355 1360 |
| Lys Leu Ile Asp Pro Asn Gly Thr Phe Phe Gln Asn Pro Ala Leu Arg | | |
| 1365 | 1370 | 1375 |
| Ser Asp Gln Gln Ile Ser Leu Leu Val Leu Pro Thr Asp Ser Ser Lys | | |
| 1380 | 1385 | 1390 |
| Met Gln Ala Gln Lys Ile Val Leu Thr Gly Asp Ile Ala Pro Gln Lys | | |
| 1395 | 1400 | 1405 |
| Gly Tyr Thr Gly Thr Leu Thr Leu Asp Pro Asp Gln Leu Gln Asn Gly | | |
| 1410 | 1415 | 1420 |
| Thr Ile Ser Val Leu Trp Lys Phe Asp Ser Tyr Arg Gln Trp Ala Tyr | | |
| 1425 | 1430 | 1435 1440 |
| Val Pro Arg Asp Asn His Phe Tyr Ala Asn Ser Ile Leu Gly Ser Gln | | |
| 1445 | 1450 | 1455 |
| Met Leu Met Val Thr Val Lys Gln Gly Leu Leu Asn Asp Lys Met Asn | | |
| 1460 | 1465 | 1470 |
| Leu Ala Arg Phe Glu Glu Val Ser Tyr Asn Asn Leu Trp Ile Ser Gly | | |
| 1475 | 1480 | 1485 |
| Leu Gly Thr Met Leu Ser Gln Val Gly Thr Pro Thr Ser Glu Glu Phe | | |
| 1490 | 1495 | 1500 |
| Thr Tyr Tyr Ser Arg Gly Ala Ser Val Ala Leu Asp Ala Lys Pro Ala | | |
| 1505 | 1510 | 1515 1520 |
| His Asp Val Ile Val Gly Ala Ala Phe Ser Lys Met Ile Gly Lys Thr | | |
| 1525 | 1530 | 1535 |
| Lys Ser Leu Lys Arg Glu Asn Asn Tyr Thr His Lys Gly Ser Glu Tyr | | |
| 1540 | 1545 | 1550 |
| Ser Tyr Gln Ala Ser Val Tyr Gly Gly Lys Pro Phe His Phe Val Ile | | |
| 1555 | 1560 | 1565 |
| Asn Lys Lys Thr Glu Lys Ser Leu Pro Leu Leu Leu Gln Gly Val Ile | | |
| 1570 | 1575 | 1580 |
| Ser Tyr Gly Tyr Ile Lys His Asp Thr Val Thr His Tyr Pro Thr Ile | | |
| 1585 | 1590 | 1595 1600 |
| Arg Glu Arg Asn Lys Gly Glu Trp Glu Asp Leu Gly Trp Leu Thr Ala | | |
| 1605 | 1610 | 1615 |
| Leu Arg Val Ser Ser Val Leu Arg Thr Pro Ala Gln Gly Asp Thr Lys | | |

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| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Gly | Val | Leu | Ser | Phe | Met | Thr | Arg | Ser | Gly | Thr | Glu | Gly | Ser | Leu |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Thr | Leu | Ser | Glu | Ile | Lys | Ile | Thr | Gly | Glu | Gly | Gly | Ala | Ile | Phe | Ser |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Gln | Gly | Glu | Leu | Leu | Phe | Thr | Asp | Leu | Thr | Gly | Leu | Thr | Ile | Gln | Asn |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Asn | Leu | Ser | Gln | Leu | Ser | Gly | Gly | Ala | Ile | Phe | Gly | Glu | Ser | Thr | Ile |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Ser | Leu | Ser | Gly | Ile | Thr | Lys | Ala | Thr | Phe | Ser | Ser | Asn | Ser | Ala | Glu |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Val | Pro | Ala | Pro | Val | Lys | Lys | Pro | Thr | Glu | Pro | Lys | Ala | Gln | Thr | Ala |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Ser | Glu | Thr | Ser | Gly | Ser | Ser | Ser | Ser | Ser | Gly | Asn | Asp | Ser | Val | Ser |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Ser | Pro | Ser | Ser | Ser | Arg | Ala | Glu | Pro | Ala | Ala | Ala | Asn | Leu | Gln | Ser |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| His | Phe | Ile | Cys | Ala | Thr | Ala | Thr | Pro | Ala | Ala | Gln | Thr | Asp | Thr | Glu |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Thr | Ser | Thr | Pro | Ser | His | Lys | Pro | Gly | Ser | Gly | Gly | Ala | Ile | Tyr | Ala |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Lys | Gly | Asp | Leu | Thr | Ile | Ala | Asp | Ser | Gln | Glu | Val | Leu | Phe | Ser | Ile |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Asn | Lys | Ala | Thr | Lys | Asp | Gly | Gly | Ala | Ile | Phe | Ala | Glu | Lys | Asp | Val |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Ser | Phe | Glu | Asn | Ile | Thr | Ser | Leu | Lys | Val | Gln | Thr | Asn | Gly | Ala | Glu |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Glu | Lys | Gly | Gly | Ala | Ile | Tyr | Ala | Lys | Gly | Asp | Leu | Ser | Ile | Gln | Ser |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Ser | Lys | Gln | Ser | Leu | Phe | Asn | Ser | Asn | Tyr | Ser | Lys | Gln | Gly | Gly | Gly |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Ala | Leu | Tyr | Val | Glu | Gly | Asp | Ile | Asn | Phe | Gln | Asp | Leu | Glu | Glu | Ile |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Arg | Ile | Lys | Tyr | Asn | Lys | Ala | Gly | Thr | Phe | Glu | Thr | Lys | Lys | Ile | Thr |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Leu | Pro | Lys | Ala | Gln | Ala | Ser | Ala | Gly | Asn | Ala | Asp | Ala | Trp | Ala | Ser |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Ser | Ser | Pro | Gln | Ser | Gly | Ser | Gly | Ala | Thr | Thr | Val | Ser | Asn | Ser | Gly |
| | | | | 405 | | | | | 410 | | | | | 415 | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Ser | Ser | Ser | Gly | Ser | Asp | Ser | Asp | Thr | Ser | Glu | Thr | Val | Pro | Ala |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Thr | Ala | Lys | Gly | Gly | Gly | Leu | Tyr | Thr | Asp | Lys | Asn | Leu | Ser | Ile | Thr |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Asn | Ile | Thr | Gly | Ile | Ile | Glu | Ile | Ala | Asn | Asn | Lys | Ala | Thr | Asp | Val |
| | | 450 | | | | 455 | | | | | 460 | | | | |
| Gly | Gly | Gly | Ala | Tyr | Val | Lys | Gly | Thr | Leu | Thr | Cys | Glu | Asn | Ser | His |
| | | 465 | | | 470 | | | | | 475 | | | | | 480 |
| Arg | Leu | Gln | Phe | Leu | Lys | Asn | Ser | Ser | Asp | Lys | Gln | Gly | Gly | Gly | Ile |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Tyr | Gly | Glu | Asp | Asn | Ile | Thr | Leu | Ser | Asn | Leu | Thr | Gly | Lys | Thr | Leu |
| | | | 500 | | | | | 505 | | | | | 510 | | |
| Phe | Gln | Glu | Asn | Thr | Ala | Lys | Glu | Glu | Gly | Gly | Gly | Leu | Phe | Ile | Lys |
| | | 515 | | | | | 520 | | | | | 525 | | | |
| Gly | Thr | Asp | Lys | Ala | Leu | Thr | Met | Thr | Gly | Leu | Asp | Ser | Phe | Cys | Leu |
| | | 530 | | | | 535 | | | | | 540 | | | | |
| Ile | Asn | Asn | Thr | Ser | Glu | Lys | His | Gly | Gly | Gly | Ala | Phe | Val | Thr | Lys |
| | | | | | 550 | | | | 555 | | | | | | 560 |
| Glu | Ile | Ser | Gln | Thr | Tyr | Thr | Ser | Asp | Val | Glu | Thr | Ile | Pro | Gly | Ile |
| | | | | 565 | | | | | 570 | | | | | 575 | |
| Thr | Pro | Val | His | Gly | Glu | Thr | Val | Ile | Thr | Gly | Asn | Lys | Ser | Thr | Gly |
| | | | 580 | | | | | 585 | | | | | 590 | | |
| Gly | Asn | Gly | Gly | Gly | Val | Cys | Thr | Lys | Arg | Leu | Ala | Leu | Ser | Asn | Leu |
| | | 595 | | | | | 600 | | | | | 605 | | | |
| Gln | Ser | Ile | Ser | Ile | Ser | Gly | Asn | Ser | Ala | Ala | Glu | Asn | Gly | Gly | Gly |
| | | 610 | | | | 615 | | | | | 620 | | | | |
| Ala | His | Thr | Cys | Pro | Asp | Ser | Phe | Pro | Thr | Ala | Asp | Thr | Ala | Glu | Gln |
| | | | | | 630 | | | | | 635 | | | | | 640 |
| Pro | Ala | Ala | Ala | Ser | Ala | Ala | Thr | Ser | Thr | Pro | Glu | Ser | Ala | Pro | Val |
| | | | | 645 | | | | | 650 | | | | | 655 | |
| Val | Ser | Thr | Ala | Leu | Ser | Thr | Pro | Ser | Ser | Ser | Thr | Val | Ser | Ser | Leu |
| | | | 660 | | | | | 665 | | | | | 670 | | |
| Thr | Leu | Leu | Ala | Ala | Ser | Ser | Gln | Ala | Ser | Pro | Ala | Thr | Ser | Asn | Lys |
| | | 675 | | | | | 680 | | | | | 685 | | | |
| Glu | Thr | Gln | Asp | Pro | Asn | Ala | Asp | Thr | Asp | Leu | Leu | Ile | Asp | Tyr | Val |
| | | 690 | | | | 695 | | | | | 700 | | | | |
| Val | Asp | Thr | Thr | Ile | Ser | Lys | Asn | Thr | Ala | Lys | Lys | Gly | Gly | Gly | Ile |
| | | | | | 710 | | | | | 715 | | | | | 720 |

| | | | | | | | | | | | | | | | |
|------------|-------------|------------|------------|------------|------------|-------------|-------------|------------|------------|------------|-------------|------------|------------|------------|------------|
| Tyr | Ala | Lys | Lys | Ala 725 | Lys | Met | Ser | Arg | Ile 730 | Asp | Gln | Leu | Asn | Ile 735 | Ser |
| Glu | Asn | Ser | Ala 740 | Thr | Glu | Ile | Gly | Gly 745 | Gly | Ile | Cys | Cys | Lys 750 | Glu | Ser |
| Leu | Glu | Leu 755 | Asp | Ala | Leu | Val | Ser 760 | Leu | Ser | Val | Thr | Glu 765 | Asn | Leu | Val |
| Gly | Lys 770 | Glu | Gly | Gly | Gly | Leu 775 | His | Ala | Lys | Thr | Val 780 | Asn | Ile | Ser | Asn |
| Leu 785 | Lys | Ser | Gly | Phe | Ser 790 | Phe | Ser | Asn | Asn | Lys 795 | Ala | Asn | Ser | Ser | Ser 800 |
| Thr | Gly | Val | Ala 805 | Thr | Thr | Ala | Ser | Ala | Pro 810 | Ala | Ala | Ala | Ala | Ala 815 | Ser |
| Leu | Gln | Ala 820 | Ala | Ala | Ala | Ala | Val | Pro 825 | Ser | Ser | Pro | Ala | Thr 830 | Pro | Thr |
| Tyr | Ser | Gly 835 | Val | Val | Gly | Gly | Ala 840 | Ile | Tyr | Gly | Glu | Lys 845 | Val | Thr | Phe |
| Ser | Gln 850 | Cys | Ser | Gly | Thr | Cys 855 | Gln | Phe | Ser | Gly | Asn 860 | Gln | Ala | Ile | Asp |
| Asn 865 | Asn | Pro | Ser | Gln | Ser 870 | Ser | Leu | Asn | Val | Gln 875 | Gly | Gly | Ala | Ile | Tyr 880 |
| Ala | Lys | Thr | Ser 885 | Leu | Ser | Ile | Gly | Ser | Ser 890 | Asp | Ala | Gly | Thr | Ser 895 | Tyr |
| Ile | Phe | Ser | Gly 900 | Asn | Ser | Val | Ser | Thr 905 | Gly | Lys | Ser | Gln | Thr 910 | Thr | Gly |
| Gln | Ile | Ala 915 | Gly | Gly | Ala | Ile | Tyr 920 | Ser | Pro | Thr | Val | Thr 925 | Leu | Asn | Cys |
| Pro | Ala 930 | Thr | Phe | Ser | Asn | Asn 935 | Thr | Ala | Ser | Met | Ala 940 | Thr | Pro | Lys | Thr |
| Ser 945 | Ser | Glu | Asp | Gly | Ser 950 | Ser | Gly | Asn | Ser | Ile 955 | Lys | Asp | Thr | Ile | Gly 960 |
| Gly | Ala | Ile | Ala 965 | Gly | Thr | Ala | Ile | Thr | Leu 970 | Ser | Gly | Val | Ser | Arg 975 | Phe |
| Ser | Gly | Asn | Thr 980 | Ala | Asp | Leu | Gly | Ala 985 | Ala | Ile | Gly | Thr | Leu 990 | Ala | Asn |
| Ala | Asn | Thr 995 | Pro | Ser | Ala | Thr | Ser 1000 | Gly | Ser | Gln | Asn | Ser | Ile | Thr | Glu |
| Lys | Ile 1010 | Thr | Leu | Glu | Asn | Gly 1015 | Ser | Phe | Ile | Phe | Glu 1020 | Arg | Asn | Gln | Ala |

Asn Lys Arg Gly Ala Ile Tyr Ser Pro Ser Val Ser Ile Lys Gly Asn
 1025 1030 1035 1040
 Asn Ile Thr Phe Asn Gln Asn Thr Ser Thr His Asp Gly Ser Ala Ile
 1045 1050 1055
 Tyr Phe Thr Lys Asp Ala Thr Ile Glu Ser Leu Gly Ser Val Leu Phe
 1060 1065 1070
 Thr Gly Asn Asn Val Thr Ala Thr Gln Ala Ser Ser Ala Thr Ser Gly
 1075 1080 1085
 Gln Asn Thr Asn Thr Ala Asn Tyr Gly Ala Ala Ile Phe Gly Asp Pro
 1090 1095 1100
 Gly Thr Thr Gln Ser Ser Gln Thr Asp Ala Ile Leu Thr Leu Leu Ala
 1105 1110 1115 1120
 Ser Ser Gly Asn Ile Thr Phe Ser Asn Asn Ser Leu Gln Asn Asn Gln
 1125 1130 1135
 Gly Asp Thr Pro Ala Ser Lys Phe Cys Ser Ile Ala Gly Tyr Val Lys
 1140 1145 1150
 Leu Ser Leu Gln Ala Ala Lys Gly Lys Thr Ile Ser Phe Phe Asp Cys
 1155 1160 1165
 Val His Thr Ser Thr Lys Lys Ile Gly Ser Thr Gln Asn Val Tyr Glu
 1170 1175 1180
 Thr Leu Asp Ile Asn Lys Glu Glu Asn Ser Asn Pro Tyr Thr Gly Thr
 1185 1190 1195 1200
 Ile Val Phe Ser Ser Glu Leu His Glu Asn Lys Ser Tyr Ile Pro Gln
 1205 1210 1215
 Asn Ala Ile Leu His Asn Gly Thr Leu Val Leu Lys Glu Lys Thr Glu
 1220 1225 1230
 Leu His Val Val Ser Phe Glu Gln Lys Glu Gly Ser Lys Leu Ile Met
 1235 1240 1245
 Lys Pro Gly Ala Val Leu Ser Asn Gln Asn Ile Ala Asn Gly Ala Leu
 1250 1255 1260
 Val Ile Asn Gly Leu Thr Ile Asp Leu Ser Ser Met Gly Thr Pro Gln
 1265 1270 1275 1280
 Ala Gly Glu Ile Phe Ser Pro Pro Glu Leu Arg Ile Val Ala Thr Thr
 1285 1290 1295
 Ser Ser Ala Ser Gly Gly Ser Gly Val Ser Ser Ser Ile Pro Thr Asn
 1300 1305 1310
 Pro Lys Arg Ile Ser Ala Ala Ala Pro Ser Gly Ser Ala Ala Thr Thr
 1315 1320 1325

Pro Thr Met Ser Glu Asn Lys Val Phe Leu Thr Gly Asp Leu Thr Leu
 1330 1335 1340
 Ile Asp Pro Asn Gly Asn Phe Tyr Gln Asn Pro Met Leu Gly Ser Asp
 1345 1350 1355 1360
 Leu Asp Val Pro Leu Ile Lys Leu Pro Thr Asn Thr Ser Asp Val Gln
 1365 1370 1375
 Val Tyr Asp Leu Thr Leu Ser Gly Asp Leu Phe Pro Gln Lys Gly Tyr
 1380 1385 1390
 Met Gly Thr Trp Thr Leu Asp Ser Asn Pro Gln Thr Gly Lys Leu Gln
 1395 1400 1405
 Ala Arg Trp Thr Phe Asp Thr Tyr Arg Arg Trp Val Tyr Ile Pro Arg
 1410 1415 1420
 Asp Asn His Phe Tyr Ala Asn Ser Ile Leu Gly Ser Gln Asn Ser Met
 1425 1430 1435 1440
 Ile Val Val Lys Gln Gly Leu Ile Asn Asn Met Leu Asn Asn Ala Arg
 1445 1450 1455
 Phe Asp Asp Ile Ala Tyr Asn Asn Phe Trp Val Ser Gly Val Gly Thr
 1460 1465 1470
 Phe Leu Ala Gln Gln Gly Thr Pro Leu Ser Glu Glu Phe Ser Tyr Tyr
 1475 1480 1485
 Ser Arg Gly Thr Ser Val Ala Ile Asp Ala Lys Pro Arg Gln Asp Phe
 1490 1495 1500
 Ile Leu Gly Ala Ala Phe Ser Lys Met Val Gly Lys Thr Lys Ala Ile
 1505 1510 1515 1520
 Lys Lys Met His Asn Tyr Phe His Lys Gly Ser Glu Tyr Ser Tyr Gln
 1525 1530 1535
 Ala Ser Val Tyr Gly Gly Lys Phe Leu Tyr Phe Leu Leu Asn Lys Gln
 1540 1545 1550
 His Gly Trp Ala Leu Pro Phe Leu Ile Gln Gly Val Val Ser Tyr Gly
 1555 1560 1565
 His Ile Lys His Asp Thr Thr Thr Leu Tyr Pro Ser Ile His Glu Arg
 1570 1575 1580
 Asn Lys Gly Asp Trp Glu Asp Leu Gly Trp Leu Ala Asp Leu Arg Ile
 1585 1590 1595 1600
 Ser Met Asp Leu Lys Glu Pro Ser Lys Asp Ser Ser Lys Arg Ile Thr
 1605 1610 1615
 Val Tyr Gly Glu Leu Glu Tyr Ser Ser Ile Arg Gln Lys Gln Phe Thr
 1620 1625 1630

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Glu Ile Asp Tyr Asp Pro Arg His Phe Asp Asp Cys Ala Tyr Arg Asn
1635 1640 1645

Leu Ser Leu Pro Val Gly Cys Ala Val Glu Gly Ala Ile Met Asn Cys
1650 1655 1660

Asn Ile Leu Met Tyr Asn Lys Leu Ala Leu Ala Tyr Met Pro Ser Ile
1665 1670 1675 1680

Tyr Arg Asn Asn Pro Val Cys Lys Tyr Arg Val Leu Ser Ser Asn Glu
1685 1690 1695

Ala Gly Gln Val Ile Cys Gly Val Pro Thr Arg Thr Ser Ala Arg Ala
1700 1705 1710

Glu Tyr Ser Thr Gln Leu Tyr Leu Gly Pro Phe Trp Thr Leu Tyr Gly
1715 1720 1725

Asn Tyr Thr Ile Asp Val Gly Met Tyr Thr Leu Ser Gln Met Thr Ser
1730 1735 1740

Cys Gly Ala Arg Met Ile Phe
1745 1750

<210> 446

<211> 660

<212> PRT

<213> Chlamydia trachomatis serovar D

<400> 446

Met Ser Glu Lys Arg Lys Ser Asn Lys Ile Ile Gly Ile Asp Leu Gly
5 10 15

Thr Thr Asn Ser Cys Val Ser Val Met Glu Gly Gly Gln Pro Lys Val
20 25 30

Ile Ala Ser Ser Glu Gly Thr Arg Thr Thr Pro Ser Ile Val Ala Phe
35 40 45

Lys Gly Gly Glu Thr Leu Val Gly Ile Pro Ala Lys Arg Gln Ala Val
50 55 60

Thr Asn Pro Glu Lys Thr Leu Ala Ser Thr Lys Arg Phe Ile Gly Arg
65 70 75 80

Lys Phe Ser Glu Val Glu Ser Glu Ile Lys Thr Val Pro Tyr Lys Val
85 90 95

Ala Pro Asn Ser Lys Gly Asp Ala Val Phe Asp Val Glu Gln Lys Leu
100 105 110

Tyr Thr Pro Glu Glu Ile Gly Ala Gln Ile Leu Met Lys Met Lys Glu
115 120 125

Thr Ala Glu Ala Tyr Leu Gly Glu Thr Val Thr Glu Ala Val Ile Thr
130 135 140

Val Pro Ala Tyr Phe Asn Asp Ser Gln Arg Ala Ser Thr Lys Asp Ala
 145 150 155 160
 Gly Arg Ile Ala Gly Leu Asp Val Lys Arg Ile Ile Pro Glu Pro Thr
 165 170 175
 Ala Ala Ala Leu Ala Tyr Gly Ile Asp Lys Glu Gly Asp Lys Lys Ile
 180 185 190
 Ala Val Phe Asp Leu Gly Gly Gly Thr Phe Asp Ile Ser Ile Leu Glu
 195 200 205
 Ile Gly Asp Gly Val Phe Glu Val Leu Ser Thr Asn Gly Asp Thr His
 210 215 220
 Leu Gly Gly Asp Asp Phe Asp Gly Val Ile Ile Asn Trp Met Leu Asp
 225 230 235 240
 Glu Phe Lys Lys Gln Glu Gly Ile Asp Leu Ser Lys Asp Asn Met Ala
 245 250 255
 Leu Gln Arg Leu Lys Asp Ala Ala Glu Lys Ala Lys Ile Glu Leu Ser
 260 265 270
 Gly Val Ser Ser Thr Glu Ile Asn Gln Pro Phe Ile Thr Ile Asp Ala
 275 280 285
 Asn Gly Pro Lys His Leu Ala Leu Thr Leu Thr Arg Ala Gln Phe Glu
 290 295 300
 His Leu Ala Ser Ser Leu Ile Glu Arg Thr Lys Gln Pro Cys Ala Gln
 305 310 315 320
 Ala Leu Lys Asp Ala Lys Leu Ser Ala Ser Asp Ile Asp Asp Val Leu
 325 330 335
 Leu Val Gly Gly Met Ser Arg Met Pro Ala Val Gln Ala Val Val Lys
 340 345 350
 Glu Ile Phe Gly Lys Glu Pro Asn Lys Gly Val Asn Pro Asp Glu Val
 355 360 365
 Val Ala Ile Gly Ala Ala Ile Gln Gly Gly Val Leu Gly Gly Glu Val
 370 375 380
 Lys Asp Val Leu Leu Leu Asp Val Ile Pro Leu Ser Leu Gly Ile Glu
 385 390 395 400
 Thr Leu Gly Gly Val Met Thr Pro Leu Val Glu Arg Asn Thr Thr Ile
 405 410 415
 Pro Thr Gln Lys Lys Gln Ile Phe Ser Thr Ala Ala Asp Asn Gln Pro
 420 425 430
 Ala Val Thr Ile Val Val Leu Gln Gly Glu Arg Pro Met Ala Lys Asp
 435 440 445

Asn Lys Glu Ile Gly Arg Phe Asp Leu Thr Asp Ile Pro Pro Ala Pro
 450 455 460
 Arg Gly His Pro Gln Ile Glu Val Thr Phe Asp Ile Asp Ala Asn Gly
 465 470 475 480
 Ile Leu His Val Ser Ala Lys Asp Ala Ala Ser Gly Arg Glu Gln Lys
 485 490 495
 Ile Arg Ile Glu Ala Ser Ser Gly Leu Lys Glu Asp Glu Ile Gln Gln
 500 505 510
 Met Ile Arg Asp Ala Glu Leu His Lys Glu Glu Asp Lys Gln Arg Lys
 515 520 525
 Glu Ala Ser Asp Val Lys Asn Glu Ala Asp Gly Met Ile Phe Arg Ala
 530 535 540
 Glu Lys Ala Val Lys Asp Tyr His Asp Lys Ile Pro Ala Glu Leu Val
 545 550 555 560
 Lys Glu Ile Glu Glu His Ile Glu Lys Val Arg Gln Ala Ile Lys Glu
 565 570 575
 Asp Ala Ser Thr Thr Ala Ile Lys Ala Ala Ser Asp Glu Leu Ser Thr
 580 585 590
 His Met Gln Lys Ile Gly Glu Ala Met Gln Ala Gln Ser Ala Ser Ala
 595 600 605
 Ala Ala Ser Ser Ala Ala Asn Ala Gln Gly Gly Pro Asn Ile Asn Ser
 610 615 620
 Glu Asp Leu Lys Lys His Ser Phe Ser Thr Arg Pro Pro Ala Gly Gly
 625 630 635 640
 Ser Ala Ser Ser Thr Asp Asn Ile Glu Asp Ala Asp Val Glu Ile Val
 645 650 655
 Asp Lys Pro Glu
 660

<210> 447

<211> 326

<212> PRT

<213> Chlamydia trachomatis serovar D

<400> 447

Met Val Ser Gln Thr Val Ser Val Ala Val Thr Gly Gly Thr Gly Gln
 5 10 15

Ile Ala Tyr Ser Phe Leu Phe Ser Leu Ala His Gly Asp Val Phe Gly
 20 25 30

Leu Asp Cys Gly Ile Asp Leu Arg Ile Tyr Asp Ile Pro Gly Thr Glu

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| | | |
|---|---|-----------------|
| 35 | 40 | 45 |
| Arg Ala Leu Ser Gly Val | Arg Met Glu Leu Asp Asp | Gly Ala Phe Pro |
| 50 | 55 | 60 |
| Leu Leu Gln Arg Val | Gln Val Thr Thr Ser Leu His Asp Ala Phe Asp | |
| 65 | 70 | 75 |
| Gly Ile Asp Ala Ala Phe Leu Ile Gly Ser Val Pro Arg Gly Pro Gly | | |
| | 85 | 90 |
| Met Glu Arg Arg Asp Leu Leu Lys Lys Asn Gly Glu Ile Phe Ala Thr | | |
| | 100 | 105 |
| Gln Gly Lys Ala Leu Asn Thr Thr Ala Lys Arg Asp Ala Lys Ile Phe | | |
| | 115 | 120 |
| Val Val Gly Asn Pro Val Asn Thr Asn Cys Trp Ile Ala Met Asn His | | |
| | 130 | 135 |
| Ala Pro Arg Leu Leu Arg Lys Asn Phe His Ala Met Leu Arg Leu Asp | | |
| | 145 | 150 |
| Gln Asn Arg Met His Ser Met Leu Ser His Arg Ala Glu Val Pro Leu | | |
| | 165 | 170 |
| Ser Ala Val Ser Gln Val Val Val Trp Gly Asn His Ser Ala Lys Gln | | |
| | 180 | 185 |
| Val Pro Asp Phe Thr Gln Ala Leu Ile Asn Asp Arg Pro Ile Ala Glu | | |
| | 195 | 200 |
| Thr Ile Ala Asp Arg Asp Trp Leu Glu Asn Ile Met Val Pro Ser Val | | |
| | 210 | 215 |
| Gln Ser Arg Gly Ser Ala Val Ile Glu Ala Arg Gly Lys Ser Ser Ala | | |
| | 225 | 230 |
| Ala Ser Ala Ala Arg Ala Leu Ala Glu Ala Ala Arg Ser Ile Tyr Gln | | |
| | 245 | 250 |
| Pro Lys Glu Gly Glu Trp Phe Ser Ser Gly Val Cys Ser Asp His Asn | | |
| | 260 | 265 |
| Pro Tyr Gly Leu Pro Glu Asp Leu Ile Phe Gly Phe Pro Cys Arg Met | | |
| | 275 | 280 |
| Leu Ala Thr Gly Glu Tyr Glu Val Ile Pro Arg Leu Pro Trp Asp Ala | | |
| | 290 | 295 |
| Phe Ile Arg Gly Lys Met Gln Ile Ser Leu Asp Glu Ile Leu Gln Glu | | |
| | 305 | 310 |
| Lys Ala Ser Val Ser Leu | | |
| | 315 | 320 |
| | 325 | |

<213> Chlamydia trachomatis serovar D

Asp Thr Arg Glu Leu Ile Ala Leu
225 . 230

<213> Chlamydia trachomatis serovar D

<400> 449

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Met | Phe | Lys | Cys | Pro | Glu | Arg | Val | Ser | Ile | Lys | Lys | Lys | Glu | Asp | Ile | |
| | | | | 5 | | | | | 10 | | | | | 15 | | |
| Leu | Asp | Leu | Pro | Asn | Leu | Val | Glu | Val | Gln | Ile | Lys | Ser | Tyr | Lys | Gln | |
| | | | 20 | | | | | 25 | | | | | 30 | | | |
| Phe | Leu | Gln | Ile | Gly | Lys | Leu | Ala | Glu | Glu | Arg | Glu | Asn | Ile | Gly | Leu | |
| | | 35 | | | | | 40 | | | | | 45 | | | | |
| Glu | Glu | Val | Phe | Arg | Glu | Ile | Phe | Pro | Ile | Lys | Ser | Tyr | Asn | Glu | Ala | |
| | 50 | | | | | 55 | | | | | 60 | | | | | |
| Thr | Ile | Leu | Glu | Tyr | Leu | Ser | Tyr | Asn | Leu | Gly | Val | Pro | Lys | Tyr | Ser | |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 | |
| Pro | Glu | Glu | Cys | Ile | Arg | Arg | Gly | Ile | Thr | Tyr | Ser | Val | Thr | Leu | Lys | |
| | | | | 85 | | | | | 90 | | | | | 95 | | |
| Val | Arg | Phe | Arg | Leu | Thr | Asp | Glu | Thr | Gly | Ile | Lys | Glu | Glu | Glu | Val | |
| | | | 100 | | | | | 105 | | | | | 110 | | | |
| Tyr | Met | Gly | Thr | Ile | Pro | Ile | Met | Thr | Asp | Lys | Gly | Thr | Phe | Ile | Ile | |
| | 115 | | | | | | 120 | | | | | 125 | | | | |
| Asn | Gly | Ala | Glu | Arg | Val | Val | Val | Ser | Gln | Val | His | Arg | Ser | Pro | Gly | |
| | 130 | | | | | 135 | | | | | 140 | | | | | |
| Ile | Asn | Phe | Glu | Gln | Glu | Lys | His | Ser | Lys | Gly | Asn | Val | Leu | Phe | Ser | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | |
| Phe | Arg | Ile | Ile | Pro | Tyr | Arg | Gly | Ser | Trp | Leu | Glu | Ala | Val | Phe | Asp | |
| | | | | 165 | | | | | 170 | | | | | 175 | | |
| Ile | Asn | Asp | Leu | Ile | Tyr | Ile | His | Ile | Asp | Arg | Lys | Lys | Arg | Arg | Arg | |
| | | | 180 | | | | | 185 | | | | | 190 | | | |
| Lys | Ile | Leu | Ala | Met | Thr | Phe | Ile | Arg | Ala | Leu | Gly | Tyr | Ser | Thr | Asp | |
| | | 195 | | | | | 200 | | | | | 205 | | | | |
| Ala | Asp | Ile | Ile | Glu | Glu | Phe | Phe | Ser | Val | Glu | Glu | Arg | Ser | Leu | Arg | |
| | 210 | | | | | 215 | | | | | 220 | | | | | |
| Leu | Glu | Lys | Asp | Phe | Val | Ala | Leu | Val | Gly | Lys | Val | Leu | Ala | Asp | Asn | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | |
| Val | Val | Asp | Ala | Asp | Ser | Ser | Leu | Val | Tyr | Gly | Lys | Ala | Gly | Glu | Lys | |
| | | | 245 | | | | | | 250 | | | | | 255 | | |
| Leu | Ser | Thr | Ala | Met | Leu | Lys | Arg | Ile | Leu | Asp | Ala | Gly | Val | Gln | Ser | |
| | | | 260 | | | | | 265 | | | | | 270 | | | |
| Leu | Lys | Ile | Ala | Val | Gly | Ala | Asp | Glu | Asn | His | Pro | Ile | Ile | Lys | Met | |
| | | 275 | | | | | 280 | | | | | 285 | | | | |
| Leu | Ala | Lys | Asp | Pro | Thr | Asp | Ser | Tyr | Glu | Ala | Ala | Leu | Lys | Asp | Phe | |
| | 290 | | | | | 295 | | | | | 300 | | | | | |

TOE340 "24E301

Tyr Arg Arg Leu Arg Pro Gly Glu Pro Ala Thr Leu Val Asn Ala Arg
 305 310 315 320
 Ser Thr Ile Met Arg Leu Phe Phe Asp Ala Lys Arg Tyr Asn Leu Gly
 325 330 335
 Arg Val Gly Arg Tyr Lys Leu Asn Lys Lys Leu Gly Phe Pro Leu Asp
 340 345 350
 Asp Glu Thr Leu Ser Gln Val Thr Leu Arg Lys Glu Asp Val Ile Gly
 355 360 365
 Ala Leu Lys Tyr Leu Ile Arg Leu Arg Met Gly Asp Glu Lys Thr Ser
 370 375 380
 Ile Asp Asp Ile Asp His Leu Ala Asn Arg Arg Val Arg Ser Val Gly
 385 390 395 400
 Glu Leu Ile Gln Asn His Cys Arg Ser Gly Leu Ala Arg Met Glu Lys
 405 410 415
 Ile Val Arg Glu Arg Met Asn Leu Phe Asp Phe Ser Ser Asp Thr Leu
 420 425 430
 Thr Pro Gly Lys Ile Ile Ser Ala Lys Gly Leu Val Ser Val Leu Lys
 435 440 445
 Asp Phe Phe Ser Arg Ser Gln Leu Ser Gln Phe Met Asp Gln Thr Asn
 450 455 460
 Pro Val Ala Glu Leu Thr His Lys Arg Arg Leu Ser Ala Leu Gly Pro
 465 470 475 480
 Gly Gly Leu Asn Arg Glu Arg Ala Gly Phe Glu Val Arg Asp Val His
 485 490 495
 Ala Ser His Tyr Gly Arg Ile Cys Pro Ile Glu Thr Pro Glu Gly Pro
 500 505 510
 Asn Ile Gly Leu Ile Thr Ser Leu Ser Ser Phe Ala Lys Ile Asn Glu
 515 520 525
 Phe Gly Phe Ile Glu Thr Pro Tyr Arg Val Val Arg Asp Gly Ile Val
 530 535 540
 Thr Asp Glu Ile Glu Tyr Met Thr Ala Asp Val Glu Glu Glu Cys Val
 545 550 555 560
 Ile Ala Gln Ala Ser Ala Glu Leu Asp Glu Tyr Asp Met Phe Lys Thr
 565 570 575
 Pro Val Cys Trp Ala Arg Tyr Lys Gly Glu Ala Phe Glu Ala Asp Thr
 580 585 590
 Ser Thr Val Thr His Met Asp Val Ser Pro Lys Gln Leu Val Ser Val
 595 600 605

| | | | | | | | | | | | | | | | |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Val 610 | Thr | Gly | Leu | Ile | Pro | Phe 615 | Leu | Glu | His | Asp | Asp 620 | Ala | Asn | Arg | Ala |
| Leu 625 | Met | Gly | Ser | Asn | Met 630 | Gln | Arg | Gln | Ala | Val 635 | Pro | Leu | Leu | Lys | Thr 640 |
| Glu | Ala | Ala | Ile | Val 645 | Gly | Thr | Gly | Leu | Glu 650 | Gly | Arg | Ala | Ala | Lys 655 | Asp |
| Ser | Gly | Ala | Ile 660 | Ile | Val | Ala | Gln | Glu 665 | Asp | Gly | Val | Val | Glu 670 | Tyr | Val |
| Asp | Ser | Tyr 675 | Glu | Ile | Val | Val | Ala 680 | Lys | Lys | Asn | Asn | Pro 685 | Thr | Leu | Lys |
| Asp | Arg 690 | Tyr | Gln | Leu | Lys | Lys 695 | Phe | Leu | Arg | Ser | Asn 700 | Ser | Gly | Thr | Cys |
| Ile 705 | Asn | Gln | Thr | Pro | Leu 710 | Cys | Ser | Val | Gly | Asp 715 | Val | Val | Thr | His | Gly 720 |
| Asp | Val | Leu | Ala | Asp 725 | Gly | Pro | Ala | Thr | Asp 730 | Lys | Gly | Glu | Leu | Ala 735 | Leu |
| Gly | Lys | Asn | Val 740 | Leu | Val | Ala | Phe | Met 745 | Pro | Trp | Tyr | Gly | Tyr 750 | Asn | Phe |
| Glu | Asp | Ala 755 | Ile | Ile | Ile | Ser | Glu 760 | Arg | Leu | Ile | Lys | Gln 765 | Asp | Ala | Tyr |
| Thr | Ser 770 | Ile | Tyr | Ile | Glu | Glu 775 | Phe | Glu | Leu | Thr | Ala 780 | Arg | Asp | Thr | Lys |
| Leu 785 | Gly | Lys | Glu | Glu | Ile 790 | Thr | Arg | Asp | Ile | Pro 795 | Asn | Val | Ser | Glu | Glu 800 |
| Val | Leu | Ala | Asn | Leu 805 | Gly | Glu | Asp | Gly | Val 810 | Val | Arg | Ile | Gly | Ala 815 | Glu |
| Val | Lys | Pro | Gly 820 | Asp | Ile | Leu | Val | Gly 825 | Lys | Ile | Thr | Pro | Lys 830 | Ser | Glu |
| Thr | Glu | Leu 835 | Ala | Pro | Glu | Glu | Arg 840 | Leu | Leu | Arg | Ala | Ile 845 | Phe | Gly | Glu |
| Lys | Ala 850 | Ala | Asp | Val | Lys | Asp 855 | Ala | Ser | Leu | Thr | Val 860 | Pro | Pro | Gly | Thr |
| Glu 865 | Gly | Val | Val | Met | Asp 870 | Val | Lys | Val | Phe | Ser 875 | Arg | Lys | Asp | Arg | Leu 880 |
| Ser | Lys | Ser | Asp | Asp 885 | Glu | Leu | Val | Glu | Glu 890 | Ala | Val | His | Leu | Lys 895 | Asp |
| Leu | Gln | Lys | Glu 900 | Tyr | Lys | Ser | Gln | Leu 905 | Ala | Gln | Leu | Lys | Val 910 | Glu | His |

Arg Glu Lys Leu Gly Ala Leu Leu Leu Asn Glu Lys Ala Pro Ala Ala
 915 920 925
 Ile Ile His Arg Arg Ser Ala Asp Ile Leu Val Gln Glu Gly Ala Ile
 930 935 940
 Phe Asp Gln Glu Thr Ile Glu Leu Leu Glu Arg Glu Ser Leu Val Asp
 945 950 955 960
 Leu Leu Met Ala Pro Cys Asp Met Tyr Asp Val Leu Lys Asp Ile Leu
 965 970 975
 Ser Ser Tyr Glu Thr Ala Val Gln Arg Leu Glu Val Asn Tyr Lys Thr
 980 985 990
 Glu Ala Glu His Ile Lys Glu Gly Asp Ala Asp Leu Asp His Gly Val
 995 1000 1005
 Ile Arg Gln Val Lys Val Tyr Val Ala Ser Lys Arg Lys Leu Gln Val
 1010 1015 1020
 Gly Asp Lys Met Ala Gly Arg His Gly Asn Lys Gly Val Val Ser Lys
 1025 1030 1035 1040
 Ile Val Pro Glu Ala Asp Met Pro Phe Leu Ala Asn Gly Glu Thr Val
 1045 1050 1055
 Gln Met Ile Leu Asn Pro Leu Gly Val Pro Ser Arg Met Asn Leu Gly
 1060 1065 1070
 Gln Val Leu Glu Thr His Leu Gly Tyr Ala Ala Lys Thr Ala Gly Ile
 1075 1080 1085
 Tyr Val Lys Thr Pro Val Phe Glu Gly Phe Pro Glu Ser Arg Ile Trp
 1090 1095 1100
 Asp Met Met Ile Glu Gln Gly Leu Pro Glu Asp Gly Lys Ser Tyr Leu
 1105 1110 1115 1120
 Phe Asp Gly Lys Thr Gly Glu Arg Phe Asp Ser Lys Val Val Val Gly
 1125 1130 1135
 Tyr Ile Tyr Met Leu Lys Leu Ser His Leu Ile Ala Asp Lys Ile His
 1140 1145 1150
 Ala Arg Ser Ile Gly Pro Tyr Ser Leu Val Thr Gln Gln Pro Leu Gly
 1155 1160 1165
 Gly Lys Ala Gln Met Gly Gly Gln Arg Phe Gly Glu Met Glu Val Trp
 1170 1175 1180
 Ala Leu Glu Ala Tyr Gly Val Ala His Met Leu Gln Glu Ile Leu Thr
 1185 1190 1195 1200
 Val Lys Ser Asp Asp Val Ser Gly Arg Thr Arg Ile Tyr Glu Ser Ile
 1205 1210 1215

Val Lys Gly Glu Asn Leu Leu Arg Ser Gly Thr Pro Glu Ser Phe Asn
 1220 1225 1230

Val Leu Ile Lys Glu Met Gln Gly Leu Gly Leu Asp Val Arg Pro Met
 1235 1240 1245

Val Val Asp Ala
 1250

<210> 450

<211> 298

<212> PRT

<213> Chlamydia trachomatis serovar D

<400> 450

Met Leu Lys Ile Asp Leu Thr Gly Lys Ile Ala Phe Ile Ala Gly Ile
 5 10 15

Gly Asp Asp Asn Gly Tyr Gly Trp Gly Ile Ala Lys Met Leu Ala Glu
 20 25 30

Ala Gly Ala Thr Ile Leu Val Gly Thr Trp Val Pro Ile Tyr Lys Ile
 35 40 45

Phe Ser Gln Ser Leu Glu Leu Gly Lys Phe Asn Ala Ser Arg Glu Leu
 50 55 60

Ser Asn Gly Glu Leu Leu Thr Phe Ala Lys Ile Tyr Pro Met Asp Ala
 65 70 75 80

Ser Phe Asp Thr Pro Glu Asp Ile Pro Gln Glu Ile Leu Glu Asn Lys
 85 90 95

Arg Tyr Lys Asp Leu Ser Gly Tyr Thr Val Ser Glu Val Val Glu Gln
 100 105 110

Val Lys Lys His Phe Gly His Ile Asp Ile Leu Val His Ser Leu Ala
 115 120 125

Asn Ser Pro Glu Ile Ala Lys Pro Leu Leu Asp Thr Ser Arg Lys Gly
 130 135 140

Tyr Leu Ala Ala Leu Ser Thr Ser Ser Tyr Ser Phe Ile Ser Leu Leu
 145 150 155 160

Ser His Phe Gly Pro Ile Met Asn Ala Gly Ala Ser Thr Ile Ser Leu
 165 170 175

Thr Tyr Leu Ala Ser Met Arg Ala Val Pro Gly Tyr Gly Gly Gly Met
 180 185 190

Asn Ala Ala Lys Ala Ala Leu Glu Ser Asp Thr Lys Val Leu Ala Trp
 195 200 205

Glu Ala Gly Arg Arg Trp Gly Val Arg Val Asn Thr Ile Ser Ala Gly

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| | | |
|---|-----|---------|
| 210 | 215 | 220 |
| Pro Leu Ala Ser Arg Ala Gly Lys Ala Ile Gly Phe Ile Glu Arg Met | | |
| 225 | 230 | 235 240 |
| Val Asp Tyr Tyr Gln Asp Trp Ala Pro Leu Pro Ser Pro Met Glu Ala | | |
| | 245 | 250 255 |
| Glu Gln Val Gly Ala Ala Ala Ala Phe Leu Val Ser Pro Leu Ala Ser | | |
| | 260 | 265 270 |
| Ala Ile Thr Gly Glu Thr Leu Tyr Val Asp His Gly Ala Asn Val Met | | |
| | 275 | 280 285 |
| Gly Ile Gly Pro Glu Met Phe Pro Lys Asp | | |
| 290 | 295 | |

<210> 451

<211> 298

<212> PRT

<213> Chlamydia trachomatis serovar D

<400> 451

| |
|---|
| Met Ser Leu Gln Lys Leu Leu Val Thr Asp Ile Asp Gly Thr Ile Thr |
| 5 10 15 |

| |
|---|
| His Gln Ser His Leu Leu His Asp Arg Val Val Lys Ala Leu His Gln |
| 20 25 30 |

| |
|---|
| Tyr Tyr Asp Ser Gly Trp Gln Leu Phe Phe Leu Thr Gly Arg Tyr Phe |
| 35 40 45 |

| |
|---|
| Ser Tyr Ala Tyr Pro Leu Phe Gln Asn Phe Ser Val Pro Phe Leu Leu |
| 50 55 60 |

| |
|---|
| Gly Ser Gln Asn Gly Ser Ser Val Trp Ser Ser Thr Asp Lys Glu Phe |
| 65 70 75 80 |

| |
|---|
| Ile Tyr Phe Arg Ser Leu Ser Arg Asp Phe Leu Tyr Val Leu Glu Lys |
| 85 90 95 |

| |
|---|
| Tyr Phe Glu Asp Leu Asp Leu Ile Ala Cys Ile Glu Ser Gly Ala Ser |
| 100 105 110 |

| |
|---|
| Asn Arg Asp Val Tyr Phe Arg Lys Gly Leu Gly Lys Thr Ser Gln Glu |
| 115 120 125 |

| |
|---|
| Leu Lys Ala Ile Leu Asp Ala Val Tyr Phe Pro Thr Pro Glu Ala Ala |
| 130 135 140 |

| |
|---|
| Arg Leu Leu Val Asp Val Gln Gly His Leu Ser Glu Glu Phe Ser Tyr |
| 145 150 155 160 |

| |
|---|
| Glu Asp Phe Ala Ile Ala Lys Phe Phe Gly Glu Arg Glu Glu Val Lys |
| 165 170 175 |

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Lys Ile Met Asp Arg Phe Ile Gln Ser Pro Glu Val Ser Ser Gln Val
180 185 190

Thr Met Asn Tyr Met Arg Trp Pro Phe Asp Phe Lys Tyr Ala Val Leu
195 200 205

Leu Leu Thr Leu Lys Asp Val Ser Lys Gly Phe Ala Val Asp Gln Val
210 215 220

Val Gln Thr Phe Tyr Lys Glu Asn Lys Pro Phe Ile Met Ala Ser Gly
225 230 235 240

Asp Asp Ala Asn Asp Ile Asp Leu Leu Ser Arg Gly Asp Phe Lys Ile
245 250 255

Val Ile Gln Thr Ala Pro Glu Glu Met His Gly Leu Ala Asp Phe Leu
260 265 270

Ala Pro Pro Ala Lys Asp Phe Gly Ile Leu Ser Ala Trp Glu Ala Gly
275 280 285

Glu Leu Arg Tyr Lys Gln Leu Val Asn Pro
290 295

<210> 452

<211> 153

<212> PRT

<213> Chlamydia trachomatis serovar D

<400> 452

Met Leu Arg Leu Phe Gln His Ile Leu Cys Phe Leu Glu Glu Asp Pro
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Ser Phe Val Asp Val Pro Gln Glu Leu Ser Phe Val Asn Glu Ala Phe
20 25 30

Ser Gly Ser Met Arg Trp Glu Val Gly Arg Met Leu Gly Ser Leu Leu
35 40 45

Leu Leu Leu Gly Ile Phe Gly Gly Gly Cys Leu Leu Phe Arg Arg Phe
50 55 60

Leu Arg Ser Arg Gly His Leu Pro Ser Gly Asn Ser Ser Ile Lys Ile
65 70 75 80

Leu Asp Gln Arg Val Leu Ala Ser Lys Thr Ser Ile Tyr Val Ile Lys
85 90 95

Val Ala Asn Lys Thr Leu Val Val Ala Glu Arg Gly Glu Arg Val Thr
100 105 110

Leu Leu Ser Glu Phe Pro Pro Asn Thr Asp Leu Asn Glu Leu Ile Gln
115 120 125

Lys Asp Gln Lys Lys Pro Ser Thr Pro Arg Gly Glu Met Leu Ser Gly
130 135 140

<210> 453
<211> 569
<212> PRT
<213> Chlamydia trachomatis serovar D

Gly Ile Asp Gly Leu Leu His Ile Thr Asp Met Thr Trp Lys Arg Ile

034133-0430

| 245 | | | | | | | | | | 250 | | | | | 255 | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|
| Arg | His | Pro | Ser | Glu | Met | Val | Glu | Leu | Asn | Gln | Glu | Leu | Glu | Val | Ile | | | | |
| | | | 260 | | | | | 265 | | | | | 270 | | | | | | |
| Ile | Leu | Ser | Val | Asp | Lys | Glu | Lys | Gly | Arg | Val | Ala | Leu | Gly | Leu | Lys | | | | |
| | | 275 | | | | | 280 | | | | | 285 | | | | | | | |
| Gln | Lys | Glu | His | Asn | Pro | Trp | Glu | Asp | Ile | Glu | Lys | Lys | Tyr | Pro | Pro | | | | |
| | 290 | | | | | 295 | | | | | 300 | | | | | | | | |
| Gly | Lys | Arg | Val | Arg | Gly | Lys | Ile | Val | Lys | Leu | Leu | Pro | Tyr | Gly | Ala | | | | |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 | | | | |
| Phe | Ile | Glu | Ile | Glu | Glu | Gly | Ile | Glu | Gly | Leu | Ile | His | Val | Ser | Glu | | | | |
| | | | | 325 | | | | | 330 | | | | | 335 | | | | | |
| Met | Ser | Trp | Val | Lys | Asn | Ile | Val | Asp | Pro | Asn | Glu | Val | Val | Asn | Lys | | | | |
| | | | 340 | | | | | 345 | | | | | 350 | | | | | | |
| Gly | Asp | Glu | Val | Glu | Val | Val | Val | Leu | Ser | Ile | Gln | Lys | Asp | Glu | Gly | | | | |
| | | 355 | | | | | 360 | | | | | 365 | | | | | | | |
| Lys | Ile | Ser | Leu | Gly | Leu | Lys | Gln | Thr | Lys | His | Asn | Pro | Trp | Asp | Asn | | | | |
| | 370 | | | | | 375 | | | | | 380 | | | | | | | | |
| Ile | Glu | Glu | Lys | Tyr | Pro | Ile | Gly | Leu | Arg | Val | Thr | Ala | Glu | Ile | Lys | | | | |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 | | | | |
| Asn | Leu | Thr | Asn | Tyr | Gly | Ala | Phe | Val | Glu | Leu | Glu | Pro | Gly | Ile | Glu | | | | |
| | | | 405 | | | | | | 410 | | | | | 415 | | | | | |
| Gly | Leu | Ile | His | Ile | Ser | Asp | Met | Ser | Trp | Ile | Lys | Lys | Val | Ser | His | | | | |
| | | 420 | | | | | 425 | | | | | | 430 | | | | | | |
| Pro | Ser | Glu | Leu | Phe | Lys | Lys | Gly | Asn | Thr | Val | Glu | Ala | Val | Ile | Leu | | | | |
| | | 435 | | | | | 440 | | | | | 445 | | | | | | | |
| Ser | Val | Asp | Lys | Glu | Ser | Lys | Lys | Ile | Thr | Leu | Gly | Val | Lys | Gln | Leu | | | | |
| | 450 | | | | | 455 | | | | | 460 | | | | | | | | |
| Thr | Pro | Asn | Pro | Trp | Asp | Glu | Ile | Glu | Val | Met | Phe | Pro | Val | Gly | Ser | | | | |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 | | | | |
| Asp | Ile | Ser | Gly | Val | Val | Thr | Lys | Ile | Thr | Ala | Phe | Gly | Ala | Phe | Val | | | | |
| | | | 485 | | | | | | 490 | | | | | 495 | | | | | |
| Glu | Leu | Gln | Asn | Gly | Ile | Glu | Gly | Leu | Ile | His | Val | Ser | Glu | Leu | Ser | | | | |
| | | 500 | | | | | | 505 | | | | | 510 | | | | | | |
| Glu | Lys | Pro | Phe | Ala | Lys | Ile | Glu | Asp | Val | Leu | Ser | Ile | Gly | Asp | Lys | | | | |
| | | 515 | | | | | 520 | | | | | 525 | | | | | | | |
| Val | Ser | Ala | Lys | Val | Ile | Lys | Leu | Asp | Pro | Asp | His | Lys | Lys | Val | Ser | | | | |
| | 530 | | | | | 535 | | | | | 540 | | | | | | | | |
| Leu | Ser | Ile | Lys | Glu | Phe | Leu | Val | His | Gly | Gly | Asp | Ala | Gly | His | Asp | | | | |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|--|-----|--|--|--|--|--|--|--|--|--|
| 545 | 550 | | | | | | | | | | 555 | | | | | | | | | | 560 | | | | | | | | | |
| Ala | Glu | Glu | Glu | Ser | Ser | Asp | Arg | Asp | | | | | | | | | | | | | | | | | | | | | | |
| | | | | 565 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <210> 454 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <211> 666 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <212> PRT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <213> Chlamydia trachomatis serovar D | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <400> 454 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Met | Glu | Ser | Leu | Ser | Val | Arg | Ser | Thr | Ile | Pro | Leu | Pro | Leu | Gly | Ala | | | | | | | | | | | | | | | |
| | | | | 5 | | | | | 10 | | | | 15 | | | | | | | | | | | | | | | | | |
| Lys | Lys | Leu | Ser | Ala | Asp | Arg | Tyr | Arg | Phe | Ser | Leu | Phe | Ser | Ser | Gln | | | | | | | | | | | | | | | |
| | | | 20 | | | | | 25 | | | | | | 30 | | | | | | | | | | | | | | | | |
| Ala | Gln | Gln | Val | Thr | Leu | Val | Leu | Leu | Asp | Pro | Leu | Ser | Glu | Ile | His | | | | | | | | | | | | | | | |
| | | 35 | | | | | | 40 | | | | | | 45 | | | | | | | | | | | | | | | | |
| Glu | Ile | Pro | Leu | Ser | Ser | Thr | Asp | His | Arg | Thr | Gly | Ala | Ile | Trp | His | | | | | | | | | | | | | | | |
| 50 | | | | | | 55 | | | | | | 60 | | | | | | | | | | | | | | | | | | |
| Ile | Glu | Ile | Ala | Gly | Ile | Ser | Ser | Glu | Trp | Ser | Tyr | Ala | Tyr | Lys | Leu | | | | | | | | | | | | | | | |
| 65 | | | | | | 70 | | | | | | 75 | | 80 | | | | | | | | | | | | | | | | |
| Arg | Gly | Thr | Asp | Leu | Ser | Ser | Gln | Lys | Phe | Ala | Thr | Asp | Ser | Tyr | Ile | | | | | | | | | | | | | | | |
| | | | 85 | | | | | | 90 | | | | | | 95 | | | | | | | | | | | | | | | |
| Ala | Asp | Pro | Tyr | Ser | Lys | Asn | Ile | Tyr | Ser | Pro | Gln | Leu | Phe | Gly | Ser | | | | | | | | | | | | | | | |
| | | | 100 | | | | | | 105 | | | | | | 110 | | | | | | | | | | | | | | | |
| Pro | Lys | Gln | Glu | Lys | Asp | Tyr | Ala | Phe | Ser | Tyr | Leu | Lys | His | Glu | Asp | | | | | | | | | | | | | | | |
| | | 115 | | | | | | 120 | | | | | | 125 | | | | | | | | | | | | | | | | |
| Phe | Asp | Trp | Glu | Gly | Asp | Thr | Pro | Leu | His | Leu | Pro | Lys | Glu | Asn | Tyr | | | | | | | | | | | | | | | |
| 130 | | | | | | 135 | | | | | | 140 | | | | | | | | | | | | | | | | | | |
| Phe | Ile | Tyr | Glu | Met | His | Val | Arg | Ser | Phe | Thr | Arg | Asp | Pro | Ser | Ser | | | | | | | | | | | | | | | |
| 145 | | | | | | 150 | | | | | | 155 | | 160 | | | | | | | | | | | | | | | | |
| Gln | Val | Ser | His | Pro | Gly | Thr | Phe | Leu | Gly | Ile | Ile | Glu | Lys | Ile | Asp | | | | | | | | | | | | | | | |
| | | | 165 | | | | | | 170 | | | | | | 175 | | | | | | | | | | | | | | | |
| His | Leu | Lys | Gln | Leu | Gly | Val | His | Ala | Val | Glu | Leu | Leu | Pro | Ile | Phe | | | | | | | | | | | | | | | |
| | | | 180 | | | | | | 185 | | | | | | 190 | | | | | | | | | | | | | | | |
| Glu | Phe | Asp | Glu | Thr | Val | His | Pro | Phe | Lys | Asn | Gln | Asp | Phe | Pro | His | | | | | | | | | | | | | | | |
| | | 195 | | | | | | 200 | | | | | | 205 | | | | | | | | | | | | | | | | |
| Leu | Cys | Asn | Tyr | Trp | Gly | Tyr | Ser | Ser | Val | Asn | Phe | Phe | Cys | Pro | Ser | | | | | | | | | | | | | | | |
| 210 | | | | | | 215 | | | | | | 220 | | | | | | | | | | | | | | | | | | |
| Arg | Arg | Tyr | Thr | Tyr | Gly | Ala | Asp | Pro | Cys | Ala | Pro | Ala | Arg | Glu | Phe | | | | | | | | | | | | | | | |
| 225 | | | | | | 230 | | | | | | 235 | | 240 | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Lys | Thr | Leu | Val | Lys 245 | Ala | Leu | His | Arg | Ala 250 | Gly | Ile | Glu | Val | Ile 255 | Leu |
| Asp | Val | Val | Phe 260 | Asn | His | Thr | Gly | Phe 265 | Glu | Gly | Thr | Ser | Cys 270 | Pro | Leu |
| Pro | Trp | Ile 275 | Asp | Leu | Glu | Ser | Tyr 280 | Tyr | Met | Val | Asn | Asp 285 | His | Gly | Asp |
| Leu | Met 290 | Asn | Phe | Ser | Gly | Cys 295 | Gly | Asn | Thr | Val | Asn 300 | Thr | Asn | Thr | Pro |
| Thr 305 | Thr | Leu | Lys | Trp | Ile 310 | Leu | Asp | Ala | Leu | Arg 315 | Tyr | Trp | Val | Gln | Glu 320 |
| Met | His | Val | Asp | Gly 325 | Phe | Arg | Phe | Asp | Leu 330 | Ala | Ser | Val | Phe | Ser 335 | Arg |
| Asp | Pro | Gln | Gly 340 | Val | Pro | Leu | Pro | Leu 345 | Thr | Pro | Ile | Leu | Gln 350 | Ala | Ile |
| Ser | Ser | Asp 355 | Ser | Ile | Leu | Ser | Glu 360 | Thr | Lys | Leu | Ile | Ala 365 | Glu | Pro | Trp |
| Asp | Ala 370 | Gly | Gly | Leu | Tyr | Gln 375 | Leu | Gly | His | Phe | Pro 380 | Ser | Ile | Ser | Thr |
| Arg 385 | Trp | Ser | Glu | Trp | Asn 390 | Gly | Cys | Tyr | Arg | Asp 395 | His | Val | Lys | Ala | Phe 400 |
| Leu | Asn | Gly | Asp | Ala 405 | His | Gln | Val | Ser | Ser 410 | Phe | Ala | Ser | Arg | Ile 415 | Ser |
| Gly | Ser | His | Asp 420 | Ile | Tyr | Pro | Asn | Gly 425 | Lys | Pro | Thr | Asn | Ser 430 | Ile | Asn |
| Tyr | Ile | Cys 435 | Ser | His | Asp | Gly | Phe 440 | Thr | Leu | Tyr | Asp | Thr 445 | Val | Ala | Tyr |
| Asn | Asp 450 | Lys | His | Asn | Glu | Glu 455 | Asn | Gly | Glu | Tyr | Asn 460 | Arg | Asp | Gly | Thr |
| Ser 465 | Ala | Asn | Tyr | Ser | Tyr 470 | Asn | Phe | Gly | Cys | Glu 475 | Gly | Glu | Thr | Thr | Asp 480 |
| Pro | Thr | Ile | Cys | Ala 485 | Leu | Arg | Glu | Arg | Gln 490 | Met | Lys | Asn | Phe | Phe 495 | Leu |
| Ala | Leu | Phe | Leu 500 | Ser | Gln | Gly | Ile | Pro 505 | Met | Ile | Gln | Ser | Gly 510 | Asp | Glu |
| Tyr | Gly | His 515 | Thr | Ala | Tyr | Gly | Asn 520 | Asn | Asn | His | Trp | Cys 525 | Leu | Asp | Thr |
| Lys | Ile 530 | Asn | Tyr | Phe | Leu | Trp 535 | Asp | Arg | Leu | Ala | Glu 540 | Arg | Lys | Glu | Leu |

Phe Ser Phe Leu Cys Gln Val Ile Ala Leu Arg Lys Ala Tyr Thr Glu
 545 550 555 560
 Leu Phe Asn Thr Ser Phe Leu Ser Glu Asp Thr Ile Thr Trp Leu Asn
 565 570 575
 Thr Lys Gly Ser Pro Arg Glu Trp Gly Ala Asp His Tyr Leu Ala Phe
 580 585 590
 Glu Leu Lys His Leu Asn Tyr Ser Leu Phe Val Ala Phe Tyr Ser Gly
 595 600 605
 Asn Glu Arg Ile Glu Ile Ser Leu Pro Lys Pro Arg Lys Glu His Leu
 610 615 620
 Ala Tyr Glu Lys Ile Val Asp Ser Thr Thr Gly Phe Phe Ser Gln Ile
 625 630 635 640
 Leu Ser Pro Lys Leu Ser Leu Glu Pro Tyr Ser Ser Leu Val Ala Ile
 645 650 655
 Ser Arg Arg Lys Thr Ser Leu Glu Ser Arg
 660 665

<210> 455
 <211> 882
 <212> DNA
 <213> Chlamydia pneumoniae

<400> 455
 gtgtccaaac atacttctga atccaggatt gctcaagata tgttagaacg ttattctggc 60
 tctagcgtaa agcaattttg tccttatctc ttactcacga acttctctta ctatatccaa 120
 acctttgcaa aacttcatgg ggtgcccgtc tttgaggggt ctatgttttc tgctgcccac 180
 gctcctcatc ttaaaacttc aatttttagat tttaaactag ggtctccagg agctgcatta 240
 actatagact tatgttcatt tcttctctgat ctcaaagcag cgcttatgtt aggaatgtgt 300
 gggggccttac gctctcatta tcagggttga gattactttg tccccgtagc tagcatagct 360
 ggagagggta cttcagacgc ctatttccct cctgaagttc cggctcttgc aaattttgtt 420
 gtacagaaag caacaactga agtttttagaa gataagaagg caaactacca tattggcatt 480
 acccacacga ccaacattcg cttttgggaa ttttaacaaa aatttagaaa aaaactgtac 540
 gaaaccaaag ctcaatccgc tgaaatggag tgtgcgacac tttttgctgc cggataccgt 600
 agaaacctgc ccattggagc gttattattg atttcagatc ttcccttaag gaaggaggga 660
 atcaaaacga agtcagtggt gaacttcac ttttaatactt atacggaaga ccacatctta 720
 acaggacaag aagtcataga gaaccttgaa aaagtcatgc taaaacgagc agcttctgac 780
 cataagaagg atcaacagta tcgaggatta cctcatatgg aagttggaga agccgatgac 840
 actatggcta gcggctctga aacttccgac agtgactatt ga 882

<210> 456
 <211> 1185
 <212> DNA
 <213> Chlamydia pneumoniae

<400> 456
 atgtcaaaag aaacttttca acgtaataag ccccatatca atattgggac gatcgggcac 60
 gttgaccatg gtaaaactac gctaacagcg gcaattacac gcgcgctatc aggggatgga 120
 ttggcctctt tccgtgacta tagttcaatt gacaatactc cagaagaaaa ggctcgtgga 180
 attactatca acgcttctca cgttgaatac gaaaccccaa atcgtcacta cgctcacgta 240

| | | | | | | |
|-------------|------------|------------|------------|------------|-------------|------|
| gactgccctg | gtcacgctga | ctatgtttaa | aatatgatta | cagggcgccg | tcaaattggac | 300 |
| ggagctatcc | tagtcgtttc | agctacagac | ggagctatgc | cacaaactaa | agaacatata | 360 |
| ttgctagctc | gccagggttg | agttccttat | atcggtgttt | tcttgaataa | agtagatatg | 420 |
| atctctcaag | aagatgctga | acttattgac | cttggtgaga | tggaacttag | tgagcttctt | 480 |
| gaagaaaaag | gctacaaagg | atgccctatt | atccgtgggt | ctgctttgaa | agctcttgaa | 540 |
| ggtgatgcaa | attatatcga | aaaagttcga | gaacttatgc | aagctgtgga | tgacaacatc | 600 |
| cctacaccag | aaagagaaat | tgataagcct | ttcttaatgc | ctatcgaaga | cgtattctca | 660 |
| atctctggtc | gtggtactgt | ggttacagga | agaatcgagc | gtggaatcgt | taaagtttct | 720 |
| gataaagttc | agctcgtggg | attaggagag | actaaagaaa | caatcgttac | tggagtcgaa | 780 |
| atgttcagga | aagaacttcc | tgaagggtcg | gcaggagaaa | acgttggttt | actcctcaga | 840 |
| ggtattggaa | agaacgatgt | tgaagagggt | atgggtgttt | gtcagcctaa | cagcgtgaag | 900 |
| cctcatacga | aatttaagtc | agctgtttac | gttcttcaga | aagaagaagg | cggacgtcat | 960 |
| aagcctttct | tcagcggata | cagacctcag | ttcttcttcc | gtactacaga | cgtgacagga | 1020 |
| gtcgtaaactc | ttcctgaagg | aactgaaatg | gtaatgcctg | gagataacgt | tgagcttgat | 1080 |
| gttgagctca | ttggaacagt | tgctcttgaa | gaaggaatga | gatttgcaat | tcgtgaagggt | 1140 |
| ggtcgtacta | tcggcgctgg | aacgatttca | aagatcaatg | cttaa | | 1185 |

<210> 457

<211> 1656

<212> DNA

<213> Chlamydia pneumoniae

<400> 457

| | | | | | | |
|-------------|-------------|-------------|-------------|------------|-------------|------|
| atgccacaaa | aagtcctgat | tacttcagct | ttaccctatg | ctaattgtcc | gtacatttt | 60 |
| ggacatatg | caggagtcta | tcttcctgca | gatgtgtatg | caagattccg | tagattgtta | 120 |
| ggagacgatg | tcctttatat | ttgtgggtcc | gatgaatttg | gcatagcgat | caccttaaat | 180 |
| gcggatcggtg | aggggttggg | gtatcaagag | tacgtggata | tgtaccataa | gttacataaa | 240 |
| gatacttttg | agaagttagg | gtttgctttg | gattttcttt | ctaggacgac | gaaccctttt | 300 |
| catgctgagc | ttgtccaaga | tttttattcc | caacttaaag | cgtctggatt | gattgaaaat | 360 |
| cgcataatctg | aacaactgta | ttcagaacaa | gaacaacggt | ttcttgcgga | tcggttatgta | 420 |
| gaagggacgt | gtcctcgggtg | cggttttgat | catgctcgag | gagacgagtg | tcagagctgt | 480 |
| ggtgcggatt | atgaggctat | agattttaatc | ggccctaagt | ctaagatttc | tggggttgag | 540 |
| ttagtaaaaa | aagagactga | gcactcatat | tttcttttgg | accgtatgaa | agacgctcta | 600 |
| ctttctttta | ttcagggtatg | ctattttacct | gatcatgtcc | gtaaatttgt | tggttgattac | 660 |
| atagaacatg | tcagggtctcg | agccattact | cgagatttat | cttgggggat | tcctgttcca | 720 |
| gactttcctg | gaaagggtgt | ttatgtatgg | tttgacgctc | ctataggata | tatcagtggg | 780 |
| actatggaat | gggcagcttc | tcaaggaaac | cctgacgaat | ggaagcggtt | ctggcttgaa | 840 |
| gacggtgtag | agtatgtcca | gtttataggt | aaagataatc | ttcctttcca | ttctgtagtt | 900 |
| ttcccagcta | tgggaattggg | tcagaaactt | gactataaaa | aagttgatgc | cctcgtagtt | 960 |
| tcagagtttt | atctttttaga | aggacggcaa | ttcagtaa | ccgagggcaa | ttatgtggat | 1020 |
| atggacaagt | ttttgagttc | ctatttcctta | gacaaattgc | gctatgtatt | ggcggctaca | 1080 |
| gctcctgaaa | cttcggatag | tgagtttact | ttccttgatt | ttaagactcg | ttgtaattct | 1140 |
| gagttggtag | gaaagtttgg | gaattttata | aaccgagttc | ttgcttttgc | agaaaagaat | 1200 |
| cactatgaca | agctttctta | tcattctgtg | gtttttagaag | atagtacag | ggcatttctt | 1260 |
| gaagaagcgc | gtcaacttgt | tcgagatgct | gagaagtgtc | acagagagta | tagtttacgt | 1320 |
| aaggctacga | gtgtgattat | gtcactggca | gcttttaggga | atgtctat | taaccaacaa | 1380 |
| gcaccttgga | agctattgaa | agaaggggact | cgtgagcggtg | ttgaggccat | tttattctgc | 1440 |
| gcatgttatt | gtcagaagtt | gttagcttta | atttcttatc | ctattattcc | cgaagcgct | 1500 |
| gtagctat | gggagatgat | ctcaccaaaa | tcttttagaaa | attgcaattt | ggatacagtg | 1560 |
| tatgctaggg | atctatggaa | agaagaaatt | cttgatgtta | taaacgaaga | atttcatttg | 1620 |
| aagtcctcca | ggttattatt | tactactgta | gagtag | | | 1656 |

<210> 458

<211> 294

<212> DNA

<213> Chlamydia pneumoniae

<400> 458
 atgattaataa aagatcggtt cactaatgaa aagttaaata agctttttcga tagtcctttt 60
 agcctagtga actacgcgat taaacaagca aagatcaaaa ttgccaaagg cgatgttcgc 120
 tcctctaatag ttgcgatcga aacactcgtc ttgttagata gagaagggat acagcctgag 180
 tttactgaag agattgtagt aactgctagc cctactgtgg aaagaaagag atcagaacat 240
 acaaattcta gaaaaaaaga tccctcagca tatacttgga gtgatgtaaa gtaa 294

<210> 459
 <211> 618
 <212> DNA
 <213> Chlamydia pneumoniae

<400> 459
 atgaataaga tcctagttga ctctcctttt tctccagatc accagaagtg ctgtcctaag 60
 ctttttaciaa ttagtgctcc tgctggagtt ggaaagacaa cacttggtccg tatgttagag 120
 caagagtttt cttctgcttt tgctgagact atatcggtaa caacaaggaa acctcgagag 180
 ggtgaagtcc caggtaaaga ttatcatttt gtttcccacg aagaatttca aagacttttg 240
 gatcgctcagg ctctcttaga atgggtgttc ttattcggag agtggttacgg aacaagtatg 300
 ttagagattg aaagaatttg gagcctaggg aagcacgctg ttgctgttat tgatatccaa 360
 ggagccttgt ttattcgtc tccgatgcct agtgatctta tttttattgc tccaccttca 420
 caggaggagt tagaaagaag gttagcttca cggggatctg aagagggctc tcaaagaaaa 480
 gaacggctgg agcacagtct tattgagcta gcagctgcaa atcagtttga ttatgtcatt 540
 attaacgacg acttaaatca agcgtacagg gttttaaaaa gcatttttat agctgaagaa 600
 cataggaaca tattatga 618

<210> 460
 <211> 1809
 <212> DNA
 <213> Chlamydia pneumoniae

<400> 460
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 gggaagtcta caattgctga tcgcctttta gaaagtacga gcacagtaga agaacgggag 120
 atgctgtgagc agctcttaga ttccatggat cttgaaagag agcgtggcat tacaattaaa 180
 gctcatcctg tcaccatgac gtatctatat gaaggagagg tgtatcaact gaacctgatt 240
 gatacccctg gtcacgtgga cttttcgtat gaagtctctc gatctctatc tgcattgtgag 300
 ggcgccctac ttattgtaga tgccgcccag ggggtgcagg cacaaggtct tgctaattgc 360
 tacctggccc ttgaaagaga tttagagatc attcctgtat taaacaagat tgatctacct 420
 gccgtgatc ccgtgagaat tgctcaacag attgaagatt atataggcct agacactacg 480
 aacattattg cctgttctgc aaaaacaggt caggggatcc ctgcaatcct gaaagcaatt 540
 atcgatcttg ttcctcctcc aaaagcacct gcagaaacag agcttaaagc ttagtcttt 600
 gattctcatt atgaccctta cggttgccatt atggtctacg tacgcattat tagcggggaa 660
 ttaaaaaaag gagaccgcat tacttttatg gcggctaaag gtcctcgtt tgaagtctta 720
 ggtatagggg cttttctccc taaagcaaca tttatagaag gttccttacg ccctggtcag 780
 gtgggttttt ttattgccaa tctcaaaaaa gtgaaggatg tgaagatcgg cgatacagtc 840
 acgaaaaaaa aacatcctgc aaaaactcct ttggaaggct tcaaagagat caatccggta 900
 gtttttgctg gaatttatcc tatagattct tctgattttg atactttgaa agatgcttta 960
 ggaagactac agctcaatga ttctgcttta actatagaac aagaaagcag tcaactctta 1020
 ggctttgggt ttcgttgttg cttcttagga ctctcttcac ttgagattat ctttgaaaga 1080
 atcattcgag aatttgactt agatattatt gcaacggctc caagtgtcat ctataaagtc 1140
 gtcttaaaaa acgggaaaagt tctagatatt gataaccctc caggatatcc ggatcctgcg 1200
 atcatcgagc atgtggaaga gccttggtt catgtgaata ttatcaccct tcaagaatat 1260
 ctgagcaaca ttatgaacct ctgttttagat aaacgtggga tctgcgtaaa aacagaaatg 1320
 ctgatcagc accgtctagt tcttgcttac gaactccctt taaatgagat tgtctcggat 1380
 ttcaatgaca agctgaagtc agtaactaaa gggttatggat cttttgacta ccgtcttggg 1440
 gattaccgta agggatcgat catcaaatta gaggttctta ttaacgagga gcccatagat 1500
 gctttttctt gtttagtcca tagagataaa gcagaatctc gtggaagaag tatctgcgaa 1560

| | | | | | | |
|------------|------------|------------|------------|------------|-------------|------|
| aagcttgtgg | acgtgattcc | acaacaactc | ttcaagattc | ccatccaagc | tgccattaac | 1620 |
| aaaaaagtca | ttgccagaga | aacgattcgt | gcgctttcta | agaacgtgac | cgcaaagtgt | 1680 |
| tatggcggag | atattactag | gaaacgcaag | ctgtgggaaa | agcaaaagaa | aggaaaaaaa | 1740 |
| cgtatgaagg | aatttggaag | agtttccatt | cccaatacag | ctttcattga | agtttctaaaa | 1800 |
| ttagattaa | | | | | | 1809 |

<210> 461
 <211> 975
 <212> DNA
 <213> Chlamydia pneumoniae

| | | | | | | |
|------------|------------|------------|------------|-------------|------------|-----|
| <400> 461 | | | | | | |
| atggaacttc | ttccacacga | aaaacaagta | gttgaatatg | aaaaggctat | agccgaattt | 60 |
| aaagaaaaaa | ataagaaaaa | ttctctctta | tcttcttcag | agattcagaa | attggaaaag | 120 |
| cgtttagata | aattaaaaa | aaagatctat | tccgatttga | ctccttggga | gcgtgtacaa | 180 |
| atatgtcgcc | acccttcgag | tccccgtact | gtcaactata | ttgaaggga | gtgtgaggag | 240 |
| tttgtcgagc | tttgtggaga | tgcaccttc | cgagatgatc | ccgcagttgt | tggtggcttt | 300 |
| gtaaaaatcc | agggtcagcg | ttttgtcctt | attggccaag | aaaagggatg | cgatacagcg | 360 |
| tcacgccttc | ataggaactt | cggtatgtta | tgtcccgagg | gtttcagaaa | agcccttcgc | 420 |
| ttaggaaaac | tcgctgaaaa | gtttggcttg | cctgtggtct | ttcttgtcga | tacccagga | 480 |
| gcatactctg | gattgactgc | tgaagagaga | ggacaaggat | gggcaattgc | caaaaatctt | 540 |
| tttgagctct | caagacttgc | cactcccgtg | attattgtcg | ttatcggtga | gggatgttca | 600 |
| ggtggagctt | tgggcatggc | tgtaggtgat | tctgtagcta | tgtttagagca | ttcctattat | 660 |
| tctgtaattt | ccccagaagg | atgcgcctcc | attcttttga | aagatcctaa | gaaaaatagc | 720 |
| gaagcagctt | ccatggtgaa | aatgcattga | gaaaacttaa | aacaatttgg | cattatcgat | 780 |
| actgttatca | aagagcccat | tgggggagct | caccacgatc | ctgcattggg | atatagcaat | 840 |
| gttcgagagt | ttatcatcca | agagtgggta | cgattaaaag | atctagctat | agaagagctg | 900 |
| ttggagaaac | ggtacgaaaa | atttcgctct | ataggtcttt | atgaaactac | ttctgaaagc | 960 |
| ggtcctgagg | cataa | | | | | 975 |

<210> 462
 <211> 1980
 <212> DNA
 <213> Chlamydia pneumoniae

| | | | | | | |
|------------|-------------|-------------|-------------|------------|-------------|------|
| <400> 462 | | | | | | |
| atgaaactac | ttctgaaagc | ggtcctgagg | cataaaaaatc | atctcgttat | attaggctgt | 60 |
| tctctactcg | caatttttagg | acttaccttt | tcatctcaga | tggagatttt | ttcttttaggg | 120 |
| atgattgcta | aaacaggccc | cgacgccttt | ttactttttg | gacgtaagga | atctggaaaa | 180 |
| cttgtaaagg | tttcagaact | aagtcagaaa | gatatttttag | agaattggca | ggcaattagt | 240 |
| aaggattcag | agacacttac | agtctctgat | gccacgacat | acatcgccga | acatgggaaa | 300 |
| agcacagcct | ctctgacgag | caagctctct | aagtttgtcc | gtaactacat | cgatgtgagc | 360 |
| cgctttcgag | gactggcaat | cttcttaatc | tgcgttgcta | tttttaaagc | agtcacctta | 420 |
| tttttccaac | gtttccttgg | gcaagtgcgt | gctatacggg | taagccgaga | cttacgtcag | 480 |
| gactacttta | aggccctaca | acaactcccc | atgaccttct | tccatgatca | tgatatcggt | 540 |
| aatttaagta | atcgtgtcat | gacagattct | gcaagcattg | ccttagcagt | aaactcttta | 600 |
| atgattaact | acattcaagc | cccaattacc | ttcatattga | cattgggagt | ctgtctgtcg | 660 |
| atttcatgga | agttttcaat | tcttatttgt | gttgcccttc | ctatctttat | ccttcccatt | 720 |
| gtcgtgatcg | ctagaagaat | caaaaattta | gcaaaacgta | ttcaaaagag | tcaggattca | 780 |
| ttttcctcog | ttctttatga | ttttcttgtc | ggggttatga | cagtaaaagt | ctttcgtaca | 840 |
| gaaaaatttg | ccttcacaaa | atattgtgag | cataacaata | agatttctgc | tttagaggag | 900 |
| aaaagtgtcg | cttacggttt | gcttccacga | cccctcctgc | ataccatagc | ttctttattt | 960 |
| tttgcttttg | tgcgtgttat | cggaatttat | aaatttgcga | ttcctcccga | agaacttatc | 1020 |
| gtattttgtg | gtttgtctca | cctaattctac | gacctatta | agaagtctcg | ggatgaaaat | 1080 |
| acctccatca | tgaggggatg | tgcgtgctgc | gagagatttt | atgaagtctt | gaatcacccc | 1140 |
| gatcttcata | gtcaaaaaga | aagagaaaatc | gagttccttg | gactttctaa | tacaatcaca | 1200 |
| ttcgagaatg | tttcttccog | ctatcaggaa | gataagcaca | tcctcaaaaa | tctaagcttt | 1260 |

| | | | | | | |
|------------|------------|------------|------------|------------|------------|------|
| accttacata | aaggcgaagc | tctaggcatt | gtaggaccta | caggatctgg | aaaaacaaca | 1320 |
| cttgtaaata | tacttcctag | gctctacgaa | gtctcccaag | gaaagattct | tatcgactct | 1380 |
| cttcctatta | cggaatataa | caaagggtcc | ttaaggaatc | acatcgctg | tgtattacag | 1440 |
| aatcctttct | tattctatga | tactgtatgg | aataacctta | cctgtggtaa | ggatatggag | 1500 |
| gaggaggctg | ttttagaagc | tctaaaacgt | gcctacgctg | atgagtttat | tttaaagctc | 1560 |
| cctaaaggag | tccatagcgt | gctcgaagaa | tctgggaaga | atctctcagg | aggacagcag | 1620 |
| caacgtttgg | caatagcacg | tgtctgttg | aaaaacgcct | ccatcttaat | tttagatgag | 1680 |
| gcaacgtcag | ctctagatgc | cattagttaa | aattacatta | agaatatcat | tggagagctt | 1740 |
| aaaggacagt | gcacacaaat | cattattgcc | cacaagctga | ccactcttga | acatgtagat | 1800 |
| cgctgtctct | acatagaaaa | tggtcaaaaa | attgccgaag | gcacaaaaga | agaactctta | 1860 |
| cagacgtgtc | ctgaattttt | aaaaatgtgg | gagctctcag | ggactaaaga | atataacagg | 1920 |
| gtctttgttc | ctgatcacia | attagtcgca | aatcctacgg | acatggcaat | aacaacttag | 1980 |

<210> 463

<211> 1236

<212> DNA

<213> Chlamydia pneumoniae

<400> 463

| | | | | | | |
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| atgattccta | ccatgttaat | gttcttcatt | atctgtttta | ctttatgctc | gggattcatt | 60 |
| tcgttatctc | aaattgcttt | gttttctttg | cctacgagtt | tgatctcgca | ctataagcgc | 120 |
| tctaaatcta | agaaacagca | gcgagtagct | acccttcttc | tacatcccca | ccacctgctc | 180 |
| atcaccttaa | ttttttgtga | tatcgactg | aatattgcta | ttcaaaactg | ttttgccatt | 240 |
| ctatttgag | atgcagcttc | gtggtggttt | actgtaggtc | ttccttttagc | aattactttg | 300 |
| atcttaggtg | agattctccc | taaagcagta | gctcttctct | ttaatacaca | gattgctagt | 360 |
| tccgtagccc | ctcttattct | ttgtgttact | aaaatcttca | aacctact | ccactggggt | 420 |
| atcgtaggaa | ttaattatgt | ggccaatgg | atcttatcga | agcaacagat | tgatatcatc | 480 |
| caaccccaag | agctgaagga | agtattgcaa | agttgtaagg | atttcggcgt | agtcaatcaa | 540 |
| gaagaaagcc | gtttactcta | tggttatctt | tctcttagtg | attgtagtgt | taaagagcgt | 600 |
| atgcagccac | gccaggatat | tttattttat | gatataccaaa | cccttttaga | gaacctctat | 660 |
| cttttatttt | ctaaacagca | ttgctcacga | gttcctatat | gtaacgataa | cctccaaaac | 720 |
| cttctgggca | tttgacagc | gcgctctctt | cttttacatg | acaagccact | gcaatcttcg | 780 |
| gatgatctcc | tccccttgct | gaaaaaaccc | tattatatgc | cagaaaccat | ctctgcaaaa | 840 |
| atggctttat | gtcagatggc | agctgaagac | gaaacctag | ggatgatcat | tgatgaatac | 900 |
| ggatctattg | aaggattgat | cactcaagaa | gacctctttg | aaattgttgc | tggagaaatt | 960 |
| gtagaccaga | gagataataa | aatactctat | accacctcag | gagctgatgt | tattattgcc | 1020 |
| tcaggaaact | tagaactccg | tgagtttagt | gagatcttcg | atatcaacct | accgacgaac | 1080 |
| aataatattg | cgactatagg | aggctgggta | atagagcaaa | tcggaacgat | tccgacaaca | 1140 |
| ggaatgaaac | tctcttgga | taacttgctt | ttccaggat | tagacgctgc | tccgaatcgc | 1200 |
| attcgccgtg | tgtatataag | gaaattgtat | gactaa | | | 1236 |

<210> 464

<211> 1215

<212> DNA

<213> Chlamydia pneumoniae

<400> 464

| | | | | | | |
|------------|------------|------------|------------|------------|-------------|-----|
| atgactaatt | ctgctctctt | ttggatagga | gtcaacatta | tctgtattgt | cttacaagga | 60 |
| ttctattcga | tgatggaaat | ggcctgcgtg | tcatttaacc | gtgtacgatt | gcaatactat | 120 |
| ctgactaaag | atcataagaa | agctcgctac | attaatttcc | tgattcgccg | cccctatcgt | 180 |
| ttatttgga | cggtgatgtt | aggagtgaat | atcgctctac | aagtcgggtc | tgagtccctca | 240 |
| agaaattgct | atcgagcttt | aggaatcact | ccagattacg | ctcctttcac | tcaaattttt | 300 |
| atagttgtga | tttttgcaga | acttctacct | ctaacaatat | cacggaagat | tcctgaaaaa | 360 |
| ttagcacttt | ggggagcacc | gattctctat | tattccact | atattttcta | tcctctgatt | 420 |
| cagctcatag | gaagtctcac | tgagggtctt | tactatcttc | taaatattag | gaaagaaaaa | 480 |
| ttgaactcta | cattaagtag | agacgagttc | caaaaagctt | tagagactca | ccatgaagaa | 540 |
| caagatttca | atacaattgc | tacaaatatt | ttctctttta | gtgcgacttg | tgcagatcag | 600 |

| | | | | | | |
|-------------|------------|------------|------------|------------|-------------|------|
| gtatgccaac | ctttagaaca | ggttaccatg | cttccttctt | ctgcaaatgt | taaagatttt | 660 |
| tgccggacta | taaaaaatac | agatatcaac | tttattcctg | tctatcacia | ggcccgaaaa | 720 |
| aacgttattg | ggattgccca | tcctaaagac | tttgtcaata | aagctcttga | tgaaccctta | 780 |
| atcaataatc | tacactcgcc | ttggtttatc | actgcaaaat | caaaacttat | tcgtatcctc | 840 |
| aaagagtttc | gagacaaccg | ttcgagtgtt | gctgttgtcc | tcaatgcttc | tgggtgaacct | 900 |
| ataggatttc | ttagtttaaa | tgcaattttc | aaaatcttat | tcaacactac | aaacattgct | 960 |
| catttaaaac | ccaagaccat | ctctgttatt | gaaagaacgt | ttcctggcaa | ctctcgcata | 1020 |
| aaagatctgc | aaaaagaact | cgatattcaa | tttccgcaat | atcctgtaga | aaccctagcc | 1080 |
| caattgggtat | tgcaactgct | agacagtcct | gcagaagtag | gaacttctgt | aattatcaac | 1140 |
| aacttgcttt | tagaagttaa | agagatgtct | ttatctggga | taaaaaccgt | atcgattaaa | 1200 |
| aacttactct | catag | | | | | 1215 |

<210> 465

<211> 1632

<212> DNA

<213> Chlamydia pneumoniae

<400> 465

| | | | | | | |
|-------------|-------------|-------------|------------|-------------|------------|------|
| ttgttcggct | cggagtccct | ccgttatcaa | ttgttgatcc | aagattttgc | aaaagtttca | 60 |
| gaagagggca | taggcctttt | ggagtctaaa | gagtattctt | tacttcaggc | taagctagtt | 120 |
| ttaagggctc | tggctcaaaa | ttcttctttt | gatgattggg | ttagaagttt | taagaagtgt | 180 |
| cagatttcct | atccagagtt | agctcatgat | cgcgatgtct | tagaagaatt | tgggattcaa | 240 |
| gttctgcgtg | agggaatcga | aaatccttcc | gtgaccgttc | gtgctgtgag | tgtccttgct | 300 |
| attgggcttg | ctagagattt | tcgcttggtc | cctctctctg | tccaaagttg | taatgatgac | 360 |
| agtgcatttg | ttcgatcttt | ggctcttcag | gttgctgtga | actatggctc | tgaaagttaa | 420 |
| aaaaaggcca | ttgtagagct | tgcccgtaat | gatgattcta | ttcatgttcg | gattacagca | 480 |
| tatcaggtgg | tcgctctttt | acagatagag | gagctattgc | catttttaag | agagcgtgct | 540 |
| gagaacaaac | ttgtagatag | tgtagaacgt | cgagaggcgt | ggaaggcttg | cttggaactc | 600 |
| tcttctcaat | ttctagagac | gggtgtagct | aaggacgata | ttgatcaagc | gttggttact | 660 |
| tgtgaagtgt | tgcgtaacgg | tatgttgcca | gagactactg | agatttttac | agaactctta | 720 |
| tctgtagagc | atcctgaagt | gcaggagtct | ctcttacttt | ctgcttttagc | ttggagtcac | 780 |
| cagctacaga | atcacaaaga | gtttcttagt | aaagtgcgct | atgtgatgtg | cacttctcca | 840 |
| tttgcaaaaag | tacgtttttca | agctgtgtga | cttctccatc | tgcatggaga | ccctttgggc | 900 |
| agagactctc | tgggttaggg | cttgcgctct | cctcaacctc | ttgtgtgtga | ggcagcttcg | 960 |
| gcggctctct | gctcttttag | aatccatgga | gtcccttttg | caaaggagca | tttgagagac | 1020 |
| ctttcttctc | gaaaggctgc | tgcgaacctc | tccattttgc | ttcttgtag | ccgtgaagat | 1080 |
| attgaaagag | ctggagatgt | gattgtctgc | tacctctcca | atcctgaaat | gtgctgggct | 1140 |
| atagagtatt | tcttatggga | tgcacaatgg | aatttacgtg | gtgatacctt | ccctctatat | 1200 |
| tcggatatga | ttaaacgtga | gattggtagg | aagctcattc | gccttttggc | agtagctcgc | 1260 |
| tatagccaag | ccaaggctgt | aacagcaacg | ttcctttcag | gacagcaagc | tcagggatgg | 1320 |
| agcttttttt | ctggaatggt | ctggggaagag | ggagatgtga | aaacttctga | ggatttggtt | 1380 |
| acagatgctt | gctttgcagc | aaagttggaa | ggagcgtag | cctcgctatg | tcagaaaaaa | 1440 |
| gatcaagctt | ccctacagag | ggtctctcaa | ctttataatg | acagccgttg | gcaagataaa | 1500 |
| ttagcaatct | tagagagcgt | tgttttttct | gagaatcttg | atgctgtgcc | ttttcttcta | 1560 |
| gactgctgcc | atcacgaagc | tccttcgctg | cgaagtgcag | cagcgggtgc | tcttttctct | 1620 |
| attttcaaat | aa | | | | | 1632 |

<210> 466

<211> 312

<212> DNA

<213> Chlamydia pneumoniae

<400> 466

| | | | | | | |
|------------|------------|------------|------------|------------|------------|-----|
| atgtcattta | aacgtttctt | gcaacagatc | cctgtacgta | tctgtctact | tattatctat | 60 |
| ctctaccaat | ggcttatctc | ccctctctta | ggctcgtgct | gtagattttt | tccttctctg | 120 |
| tcgcactatg | cagaacaagc | cttaaaatct | cacggcttcc | tgatgggctg | ctggctttct | 180 |
| ataaagagaa | tcggaaagtg | tggcccttgg | catcctggag | gcattgacat | ggccctaag | 240 |

actgctttgc aggaagtttt agaacccttac caggaaatag acggtggtga ttcaagccat 300
 ttttctgaat ga 312

<210> 467

<211> 1089

<212> DNA

<213> Chlamydia pneumoniae

<400> 467

| | | | | | | |
|-------------|------------|-------------|-------------|------------|------------|------|
| atggcctttca | aaagaaaaac | tagatggctg | tggcaagtct | tgatcctgag | tgtgggattg | 60 |
| aatatgcttt | ttttgctctt | attttactct | gccatatctc | gtaaagacat | ctataagctg | 120 |
| catttatttt | ccggaccttt | gattgcgaaa | agtagtcgta | aggtctacct | ttctgaagat | 180 |
| tttttaaacg | agatatctca | agcatctttg | gacgacttga | tttcgcttgt | caaagatgag | 240 |
| cgctatatgt | atggtcggcc | gataaaaactt | tgggcgcttga | gtgtagcgat | agcttcccac | 300 |
| cacatagaca | tcactcctgt | gcttttcgaag | cctttgacct | atacagagtt | gaaaggatct | 360 |
| tcagtgcggt | ggcttttgcc | gaatattgat | cttaaagact | ttcctgtgat | tttggactat | 420 |
| ttgcgcttgc | acaagtatcc | ctataactct | aaggcgcttgt | ttttgctgat | agaaaagatg | 480 |
| gtacaagaag | gctgggtaga | tgaagattgc | ctgtatcatt | tctgctcgac | tccagaattt | 540 |
| ctttacttgc | gtacgttact | tgtaggtgca | gacgtgcagg | cctcttcagt | agcctcatta | 600 |
| gctcgtatgg | tgattcgttg | cggatccgaa | cgtttctttc | atttttgcaa | tgaagagagc | 660 |
| cgcacttcca | tgatttcagc | tacacaacgt | cagaaagtct | taaaatctta | tttagattgt | 720 |
| gaagaatctc | tggcagcctt | gcttttgctt | gtccatgata | gtgatgttgt | tttgcattga | 780 |
| ttttgtgatg | aagatcttga | gaaggatcat | cgctgatgac | ctcaagagtc | tccctatagt | 840 |
| cagaatttct | tctctcgatt | acagcattct | ccgcgtagag | agttggcctg | catgtcgact | 900 |
| cagagggtag | aggctcctcg | tgttcaagaa | gatcaggatg | aagagtatgt | ggtacaggac | 960 |
| ggggatttct | tatggttgat | agctaagagg | tttggcattc | ctatggataa | gatcattcag | 1020 |
| aaaaatggct | tgaatcacca | ccgtctattt | cctggtaagg | ttctaaaact | tcctgcaaag | 1080 |
| cagtcttag | | | | | | 1089 |

<210> 468

<211> 1308

<212> DNA

<213> Chlamydia pneumoniae

<400> 468

| | | | | | | |
|-------------|-------------|-------------|-------------|-------------|-------------|------|
| atgttttcac | gatggatcac | cctcttttta | ttattcatta | gccttactgg | atgctcctcc | 60 |
| tactcttcaa | aacataaaca | atctttaatt | attcccatac | atgacgaccc | tgtagctttt | 120 |
| tctcctgaac | aagcaaaaacg | ggccatggac | ctttctattg | cccaacttct | ttttgatggg | 180 |
| ctgactagag | aaactcatcg | cgaatccaat | gatttggaa | tagcgattgc | cagtcgctat | 240 |
| acagtctctg | aagacttttg | ctcttatacg | ttctttatca | aagacagcgc | tttatggagc | 300 |
| gacggaacac | caatcacctc | cgaagataatc | cgtaacgctt | gggagtatgc | acaggagaac | 360 |
| tctccccaca | tacagatctt | ccaaggactt | aacttctcaa | ctccttcatc | aaatgcaatt | 420 |
| acgattcatc | tcgactcgcc | caacccccgat | tttcctaagc | ttcttgccct | tcctgcattt | 480 |
| gctatcttta | aaccagaaaa | cccgaagctc | tttagcggtc | cgtatactct | tgtagagtat | 540 |
| ttcccagggc | ataacattca | tttaaagaaa | aaccctaact | attacgacta | ccactgcgtc | 600 |
| tccatcaact | ccatcaaaact | gctcattatt | cctgatatat | atacagccat | ccacctccta | 660 |
| aacagaggca | aggtggactg | ggtaggacaa | ccctggcatc | aagggattcc | ttgggagctc | 720 |
| cataaacaat | cgcaatatca | ctactacacc | tatcctgtag | aagggtgcctt | ctggcctttgt | 780 |
| ctaaatacaa | aatccccaca | cttaaatgat | cttcaaaaaca | gacatagact | cgctacttgt | 840 |
| attgataaac | gttctatcat | tgaagaagct | cttcaaggaa | cccaacaacc | agcggaaaaca | 900 |
| ctgtcccag | gagctccaca | accaaataca | tataaaaaac | aaaagcctct | aactccacaa | 960 |
| gaaaaactcg | tgcttaccta | tccttcagat | attctaagat | gccaacgcat | agcagaaatc | 1020 |
| ttaaagggaac | aatggaaagc | tgctggaata | gatttaatcc | ttgaaggact | cgaataccat | 1080 |
| ctgtttgtta | acaaacgaaa | agtccaagac | tacgccatag | caacacagac | tggagttgct | 1140 |
| tattacccag | gagcaaatct | aatttctgaa | gaagacaagc | tcctgcaaaa | ctttgagatt | 1200 |
| atcccgatct | actatctgag | ctatgactat | ctcactcaag | attttataga | gggagtaatc | 1260 |
| tataatgctt | ctggagctgt | agatctcaaa | tatacctatt | tcccctag | | 1308 |

| | |
|-------|------|
| <210> | 471 |
| <211> | 1083 |
| <212> | DNA |

<213> Chlamydia pneumoniae

<400> 471

| | | | | | | |
|-------------|------------|-------------|-------------|------------|------------|------|
| atgtccgaag | caccagtcta | cactcttaaa | cagttagctg | agctactaca | agtcgaagtt | 60 |
| caaggaaata | tagaaactcc | tatttcaggt | gttgaagata | ttagtcaggc | gcaacctcac | 120 |
| catattgctt | ttttagataa | tgagaaatac | tctagctttc | taaaaaacac | caaagctggg | 180 |
| gctattattt | tatctagatc | tcaggcaatg | caacatgccc | acctaaagaa | aaactttctt | 240 |
| attaccaatg | aatccccttc | tctaacattt | caaaagtgca | tagagttggt | tattgaaccc | 300 |
| gtaacatcag | ggtttcctgg | tattcatcct | actgcagtga | ttcatcctac | tgacagtatt | 360 |
| gagaaaaatg | taaccataga | accttacgtt | gtcattagtc | aacatgcccc | tatcggctct | 420 |
| gacacataca | tcggagctgg | aagtgtcatt | ggagctcaca | gcgttctagg | tgctaactgt | 480 |
| ctgattcacc | ctaagggtgt | gattcgagaa | agagtcctca | tgggaaaccg | tgtagttggt | 540 |
| caacctggag | ctgttttagg | atcctgtggt | tttggttata | ttacaaatgc | ttttggtcat | 600 |
| cacaaacctt | taaagcatct | aggctatgtg | attgtaggtg | atgatgtaga | aatcggagcc | 660 |
| aacactacga | tagatcgtgg | tcgattcaag | aacaccgtga | tccatgaagg | aactaaaata | 720 |
| gataaccaag | tacaagtagc | tcatacacga | gaaattggaa | agcatagtat | tattgttgcc | 780 |
| caagcaggca | ttgcagggtc | tacaaaaaatt | ggatgaacatg | tcatacattg | agggcaaac | 840 |
| ggaattactg | ggcatatttc | tattgcagac | catgtgatca | tgattgctca | aactggagtc | 900 |
| acaaaaatcta | tcacctctcc | aggcatattat | ggaggcgctc | cagcacgacc | ttatcaagaa | 960 |
| acacatcggt | tgattgctaa | aattcggaac | cttcctaaaa | ctgaagaaag | actaagtaag | 1020 |
| ttagaaaaac | aagtaagaga | tctatcgact | cccagccttg | ctgagattcc | ttcagagatc | 1080 |
| taa | | | | | | 1083 |

<210> 472

<211> 1200

<212> DNA

<213> Chlamydia pneumoniae

<400> 472

| | | | | | | |
|-------------|------------|-------------|------------|-------------|------------|------|
| atggcagcat | caggaggcac | aggtggttta | ggaggcactc | agggtgtcaa | ccttgcagct | 60 |
| gtagaagctg | cagctgcaaa | agcagatgca | gcagaagttg | tagccagcca | agaaggttct | 120 |
| gagatgaaca | tgattcaaca | atctcaggac | ctgacaaatc | ccgcagcagc | aacacgcacg | 180 |
| aaaaaaaaagg | aagagaagtt | tcaaactcta | gaatctcgga | aaaaaggaga | agctggaaag | 240 |
| gctgagaaaa | aatctgaatc | tacagaagag | aagcctgaca | cagatcttgc | tgataagtat | 300 |
| gcttctggga | attctgaaat | ctctgggtcaa | gaacttcgcg | gcctgcgtga | tgcaatagga | 360 |
| gacgatgctt | ctccagaaga | cattcttgct | cttgtacaag | agaaaattaa | agaccagct | 420 |
| ctgcaatcca | cagctttgga | ctacctgggt | caaacgactc | cacctccca | aggtaaatta | 480 |
| aaagaagcgc | ttatccaagc | aaggaatact | catacggagc | aattcggacg | aactgctatt | 540 |
| ggtgcgaaaa | acatcttatt | tgacctctcaa | gaatatgcag | accaactgaa | tgtttctcct | 600 |
| tcagggtctc | gctctttgta | cttagaagtg | actggagaca | cacataacctg | tgatcagcta | 660 |
| ctttctatgc | ttcaagaccg | ctatacctac | caagatatgg | ctattgtcag | ctcctttcta | 720 |
| atgaaaggaa | tggaacaga | attaaaaagg | cagggtccct | acgtaccoag | tgcgcaacta | 780 |
| caagttctca | tgacagaaac | tcgtaacctg | caagcagttc | ttacctcgta | cgattacttt | 840 |
| gaaagtgcgc | ttcctatttt | actcgatagc | ttaaaagctg | agggaatcca | aactccttct | 900 |
| gatctaaact | ttgtgaaggt | agctgagtc | taccataaaa | tcattaacga | taagttccca | 960 |
| acagcatcta | aagtagaacg | agaagtccgc | aatctcatag | gagacgatgt | tgattctgtg | 1020 |
| accggtgtct | tgaacttatt | cttttctgct | ttacgtcaaa | cgctcgtcacg | ccttttctct | 1080 |
| tcagcagaca | aacgtcagca | attaggagct | atgattgcta | atgctttaga | tgctgtaa | 1140 |
| ataaacaatg | aagattatcc | caaagcatca | gacttcctta | aacctatcc | ttggtcatga | 1200 |

<210> 473

<211> 675

<212> DNA

<213> Chlamydia pneumoniae

<400> 473

| | | | | | | |
|------------|------------|------------|------------|------------|------------|----|
| atgacatcct | ggatagaatt | acttgataag | caaattgaag | atcaacatat | gttaaagcac | 60 |
|------------|------------|------------|------------|------------|------------|----|

| | | | | | | |
|------------|------------|-------------|------------|-------------|------------|-----|
| gaattttatc | agcgttggtc | tgaaggaaag | ttagaaaaac | aacaacttca | agcttatgcc | 120 |
| aaagattact | atttacatat | taaagcattt | ccttggtacc | tttcagcgct | gcatgctcgc | 180 |
| tgtgatgact | tgcagattcg | tagacaaatt | cttgagaatc | tcatggatga | agaagctgga | 240 |
| aatcctaate | acatagattt | atggagacag | tttgctttat | ctcttggagt | ttctgaagag | 300 |
| gagcttgcca | atcatgaatt | cagtcaggct | gctcaagata | tggttagcgac | atttcgccgc | 360 |
| ttatgcgaca | tgccacaact | tgccgtgggt | ttaggcgctc | tctatactta | tgagattcag | 420 |
| attcctcaag | tctgtgtaga | gaaaatccgt | ggtttgaaag | aatatttttg | agtttctgct | 480 |
| cgaggctatg | catactttac | tgtacatcaa | gaagctgata | ttaaacatgc | cagcgaagag | 540 |
| aaagaaatgc | tacaaacttt | ggtaggcaga | gagaatcctg | atgctgtttt | gcaaggatca | 600 |
| caagaagtgt | tagatactct | atggaaacttt | ttgagctctt | ttattaattc | aacggagcct | 660 |
| tgttcttgta | agtag | | | | | 675 |

<210> 474

<211> 741

<212> DNA

<213> Chlamydia pneumoniae

<400> 474

| | | | | | | |
|-------------|------------|-------------|------------|------------|-------------|-----|
| atgaaaaatca | ccacagtcaa | aacacccaaa | atatatcctt | atgatgacct | atattctatt | 60 |
| ctagagtctt | cattgcctaa | gttaaacgaa | cgctctattg | ttgtgattac | gtctaagata | 120 |
| gtctctttat | gtgaagggtc | tgtttagtaa | cttgagaagg | tttctaaaga | tgaattaata | 180 |
| aagcaagaag | cagatgccta | tggttttgta | gagaaatacg | gcatatatct | aactaagaag | 240 |
| tggtgggatac | tcattccttc | agcgggggatt | gacgagtcca | atggtgaagg | ttattttgtg | 300 |
| ttgtatccta | gggatttttt | gctttccgtg | aatactctag | gggattgggt | aagggaatttc | 360 |
| tatcatctcg | agcattgcgg | aatcattata | tcggatagtc | atacgactcc | gttgcgctcg | 420 |
| ggaactatgg | gtttaggctt | atggtggaat | ggttttttcc | ctttatataa | ttatgtagga | 480 |
| aaaccagatt | gttttggtcg | tgttttgaag | atgacttata | gcaatttatt | agatgggtta | 540 |
| tcggcagctg | cggttctttg | tatgggagag | ggagacgagc | agactcccat | tgctattata | 600 |
| gaggaagctc | ccaagattac | cttccattct | tctccaacta | cattacaaga | tatgagcact | 660 |
| ttagcaatcg | ctgaggatga | agattttatat | ggtcctctgc | tacaatctat | ggcatgggaa | 720 |
| actcccgcac | caacctcctg | a | | | | 741 |

<210> 475

<211> 1062

<212> DNA

<213> Chlamydia pneumoniae

<400> 475

| | | | | | | |
|------------|------------|------------|-------------|------------|------------|------|
| atgaataaaa | gacaaaaaga | taaattaaaa | atctgtgtta | ttattagcac | gttgatttta | 60 |
| gtaggaattt | ttgcaagagc | tctctgtggt | gacactttta | agactttttt | aaagtctgaa | 120 |
| gaagctatca | tctactcaaa | tcaatgcaat | gaggacatgc | gtaaaattct | atgcatgct | 180 |
| atagaacacg | ctgatgaaga | gatcttcta | cgtatttata | acctctcaga | acccaagatc | 240 |
| caacagagtt | taactcgaca | agctcaagca | aaaaacaaag | ttacgatcta | ctatcaaaaa | 300 |
| tttaaaattc | cccaaatctt | aaagcaagcc | agcaatgtaa | ctttagtctg | gcaacctcca | 360 |
| gcagggcgta | aactgatgca | tcaaaaagct | ctttccatag | ataagaaaga | tgcttggtta | 420 |
| ggatctgcga | actacacca | tctttctcta | cgttttagata | ataatctcat | tctaggaatg | 480 |
| catagctcgg | agctctgtga | tctcattatc | acaaatacct | ctggagactt | ttctataaag | 540 |
| gatcaaacag | gaaagtattt | tggttcttct | caagatcgta | aaattgcaat | acaagctgta | 600 |
| ctcgaaaaaa | tccagacagc | tcagaaaacc | atccaagttg | ctatgtttgc | tctgaccac | 660 |
| tcggagatta | ttcaagcctt | acatcaagca | aaacaacgag | gaatccatgt | agatattatc | 720 |
| attgatagaa | gtcatagcaa | acttactttt | aagcaattac | gacaattaaa | tatcaataaa | 780 |
| gactttgttt | ctataaatac | cgcacctgt | actcttcacc | ataagtttgc | agttatagat | 840 |
| aataaaactc | tacttgagg | atctataaat | tggtctaaag | gaagattctc | cttaaatgat | 900 |
| gaaagcttga | tcatactgga | aaacctgacc | aaacaacaaa | atcagaaact | tcgaatgatt | 960 |
| tggaagatc | tagctaagca | ttcagaacat | cctacagtag | acgatgaaga | aaaagaaatt | 1020 |
| atagaaaaaa | gtcttccagt | agaagagcaa | gaagcagcgt | ga | | 1062 |

<210> 476
 <211> 561
 <212> DNA
 <213> Chlamydia pneumoniae

<400> 476
 gtggcattaa attttaagat taacaggcaa ataagagctc ctaaagtctg tctcattggt 60
 tcagccggag aacagttagg aatacttgct atcaaagatg ctttggaatt agcccagag 120
 gcaggtcttg atttagttga agttgcttca aatagcgagc ctctgtatg taagatcatg 180
 gactacggta aataccgtta tggctcgaca aaaaaggaaa aagatagtaa aaaagctcaa 240
 catcaggtgc gcataaaaga agttaagctt aagcctaaca tagacgaaaa tgatttttctg 300
 actaagttaa agcaagcgcg tacgttcgtt gaaaaaggaa ataaagtcaa aattacatgc 360
 atgttccgtg gtagagaatt agcttatcca gaacatggtt ttaaagttgt tcaaaaaatg 420
 agtcaggggt tagaggatat tggtttcgtt gaagctgaac ccaaactagc aggtcgttcc 480
 ttgatttggt ttgtggctcc aggaacagta aaaacaaaga aaaaacagga aaagtctcat 540
 gcccaagatg aaaaccaata a 561

<210> 477
 <211> 3135
 <212> DNA
 <213> Chlamydia pneumoniae

<400> 477
 atggtcgaag ttgaagaaaa gcattacacc atcgtcaaac gtaatggaat gtttgtccca 60
 tttaatcaag atcggatttt ccaggctttg gaggcagctt ttcgagatac gcgtagctta 120
 gaaactagtt ctccactacc taaagactta gaagaatcta ttgcgcaaat tactcataaa 180
 gtcgtgaagg aagtcctcgc taaaatttca gaaggtcagg tagtcaactgt agagagaatc 240
 caggatcttg tagaaagtca gctctatatt agcgggttgc aggatgtggc tcgcgattat 300
 attgtttaca gggaccaacg caaggcagag cgcggttaact ctctgtccat aattgccatc 360
 atacgtagag acggggggaag cgctaaattt aatcctatga agatctctgc agctctcgaa 420
 aaagcattca gagcgacgct ccaaattaat gggatgactc ctctgcaac actatccgaa 480
 attaatgacc ttacccttag gatcggtgaa gatgtcctaa gccttcatgg tgaagaagct 540
 attaatctgg aagagatcca agatattgtt gaaaagcaac ttatggttgc cggctattat 600
 gatgtggcca agaattatat tttatataga gaagctcgtg cacgagcccg tgctaataaa 660
 gatcaagatg gacaagaaga gtttgtcccc caagaggaaa cgtacgttgt tcaaaaagaa 720
 gacggcacca cctaccttct gagaaaaaca gatttagaaa agagggtttc ttgggcatgc 780
 aaacgctttc ctaaaactac agattctcaa ctgcttgacg atatggcatt tatgaatttg 840
 tattcaggaa tcaaagaaga cgaggtcacc acagcatgca tcatggcggc acgtgccaat 900
 atcgagagag aacctgatta cgcttttatc gcagcagaac tcctcacgag ttcttctgat 960
 gaagagacct taggatgcag ctctcaagac cccaatttat cagaaatata taaaaaacat 1020
 tttaaagaat acatcctcaa tggagaagag tatcgcttga atcctcaatt aaaggattat 1080
 gatctcgatg ctcttagtga agtcctagac ctctctagag accaacagtt ttcttatatg 1140
 ggagtccaaa atctctacga tcgctatttt aatctgcagt aaggacgacg tttagagact 1200
 gcgcagatct tttggatgag ggtttctatg ggcttagcct taaatgaagg agaacaaaag 1260
 aatttttggg caatcacttt ctataatctg ttatccacat tccgctatac ccagcaact 1320
 cctacattgt ttaactccgg aatgcgtcat tcccaactca gttcatgcta tctttccaca 1380
 gtaaaagatg acctaagtca catttataag gtgatttctg ataatgcttt gctttctaaa 1440
 tgggcagggg gaattggaaa tgattggaca gatgtccgtg ctacaggagc tgtaattaag 1500
 ggaaccaatg gaaagagcca aggcgtcatt cccttcatta aggttgccaa tgatactgca 1560
 attgcagtga atcagggggg caaacgtaaa ggtgctatgt gcgtatatat agaaaactgg 1620
 cacttgattt acgaagactt tttagaattg cggaagaata caggagatga gcgtcgtaga 1680
 actcacgata tcaatacagc aagctggatt cctgatctct tctttaagag actagaaaaa 1740
 aaaggcatgt ggacactctt tagccccgat gatgtcccag gtttacacga agcctatggg 1800
 ttagagtttg aaaagcttta tgaagaatat gaacgtaagg ttgaatctgg ggaaatccgt 1860
 ctttataaaa aagtagaagc cgaagtgtct tggcgtaaaa tgtaagcat gctttacgaa 1920
 acagggcatc cttggattac atttaaagat ccttcgaata ttcgctcaaa ccaagatcat 1980
 gttggcgtcg tacgctgttc taatctatgt acagagattt tattgaactg ttcggaatca 2040

```
<210> 478
<211> 1041
<212> DNA
<213> Chlamydia pneumoniae
```

```
<210> 479
<211> 984
<212> DNA
<213> Chlamydia pneumoniae
```

| | | | | | | | |
|------------|------------|-------------|------------|-------------|------------|--|-----|
| <400> | 479 | | | | | | |
| atggatgcga | aaatgggata | tatatatttaa | gtgatgcggt | ggatttttctg | tttcgtggca | | 60 |
| tgtggtataa | cttttgatg | taccaattct | gggtttcaga | atgcaaattc | acgtccttgt | | 120 |
| atactatcca | tgaatcgcat | gattcatgat | tgtgttgaaa | gagtcgtggg | gaataggcct | | 180 |
| gctaccgctg | ttttgatcaa | aggatcctta | gaccctcatg | cgtatgagat | ggttaaaggg | | 240 |
| gataaggaga | agattgctgg | aagtgccgta | attttttgta | acggcctggg | tcttgagcat | | 300 |
| acattaagtt | tgcggaagca | tttagaaaat | aatcccaata | gtgtcaagtt | aggggaqcqg | | 360 |

| | | | | | | |
|-------------|-------------|-------------|-------------|-------------|-------------|-----|
| ttgatagcgc | gtgggggcctt | tgttcctcta | gaagaagacg | gtatttgcg | tcctcatatc | 420 |
| tggatggatc | tttctatttg | gaagggaagct | gtcatagaaa | ttacagaagt | tctcattgaa | 480 |
| aagttccctg | aatgggtctgc | tgaattttaa | gcaaatagtg | aggaacttgt | ttgtgaaatg | 540 |
| tctatttttag | attcttgggc | gaaacaatgc | ttgagcacia | ttcctgaaaa | tttacgggtat | 600 |
| cttgtctcag | gtcataatgc | gttcagttac | tttacacgtc | gctatttagc | tactcctgaa | 660 |
| gaagtggctt | ccggagcatg | gaggtctcgt | tgtatttctc | ctgaggggtct | atctccagaa | 720 |
| gctcaaatca | gtgttcgtga | tattatggcg | gtttagatt | atattaatga | gcatgatgtc | 780 |
| agtgtggttt | tccctgagga | tactctgaac | caagatgcgt | tgaaaaaat | tgtttcttct | 840 |
| ctgaagaaaa | gtcatttagt | tcgtctagct | caaaaacccat | tgtatagtga | taatgtggac | 900 |
| gacaattatt | ttagcacctt | taaacataat | gtctgcctta | tcacagaaga | attaggaggg | 960 |
| gtggctcttg | aatgtcaaa | atga | | | | 984 |

<210> 480

<211> 444

<212> DNA

<213> Chlamydia pneumoniae

<400> 480

| | | | | | | |
|------------|-------------|------------|------------|------------|-------------|-----|
| atgcaaaacc | aatacgagca | attactagaa | tccttagcac | ccctattaaa | tacgacaactt | 60 |
| gctccagata | aaaataactc | ttgtttaatc | cgtttcagcg | atacccatgt | ccctgtgcaa | 120 |
| atagaagaag | atggaaattc | cggagatctt | gcagtatoga | cactactagg | tactcttctt | 180 |
| gaaaacgtat | ttcgcgagcg | tattttcaaa | gctgctctct | ctgtaaatgg | ctcgttccaa | 240 |
| tccagcatca | agggaaattct | aggctacggg | gaggtcactc | aacagctcta | tctttcagat | 300 |
| atcctgagta | tgaactacct | aaatggagaa | aagttattcg | agtatctcaa | gctcttttct | 360 |
| ttgcatgcta | agatttggat | ggaatcccta | agaacaggga | atcttcctga | ccttcattgtt | 420 |
| ttgggaatct | actacgtcgc | gtga | | | | 444 |

<210> 481

<211> 1581

<212> DNA

<213> Chlamydia pneumoniae

<400> 481

| | | | | | | |
|-------------|-------------|-------------|-------------|------------|-------------|------|
| gtgaatgttt | taaaatacac | aaaacactca | ccctcagcac | atgcttggaa | acttatagga | 60 |
| acctctccta | aacacgggat | ttatctccca | ctattttcaa | tacacacaaa | aaatagctgt | 120 |
| ggaatcggtg | aatttttaga | tctcattcct | ctgatctctt | ggtgccaaaa | acagggcttc | 180 |
| agcgttattc | agcttctccc | tttaaattgat | actggtgaag | atacagagtc | ctataacagc | 240 |
| atctcttccg | tagccctgaa | tcccctattc | ctttccctat | cctctcttcc | aaatatcgat | 300 |
| accatccctg | aagttgccaa | gaaacttcaa | gatatgcatg | agttatgctc | gactccatca | 360 |
| gtcagctata | ctcaagttaa | agaaaaaaa | tgggcattct | taagagagta | ctacaaaaaa | 420 |
| tgttgcaagt | cttccctcga | aggaaactca | aatttttctg | agtttctaga | aagcgagcgc | 480 |
| tattggcttt | atccctatgg | gacctttcgt | gcaatcaaac | atcatatgca | cggagaacct | 540 |
| attaataact | ggccgaagtg | gtcacagat | caggagaatt | ttccggactt | aactaaaaaa | 600 |
| ttccatgatg | aagtcctctt | tttttcttat | ctacagtttc | tctgttacca | acagctctgc | 660 |
| gaagtgaag | cctatgcaga | tcaacaccac | gtcctgctta | aaggagacct | ccctattctt | 720 |
| attagcaagg | atagctgtga | tgtttgggtat | ttccgagact | acttttcttc | atcaagggtct | 780 |
| gtaggagctc | ctcctgacct | ctacaattct | gaaggacaaa | actggcatct | gcctattttat | 840 |
| aattttttcac | aacttgccaa | agacgactac | atttgggtgga | aagagcgtct | gcgatatgct | 900 |
| caaaacttct | attccgtcta | tcgcttagat | catattatag | gatttttccg | tttgtggatt | 960 |
| tgggattctt | caggaagagg | aagggttcatt | ccagacaatc | ctaaagacta | tataaagcag | 1020 |
| ggcacggaga | tcctttctac | tatgctcgga | gcctcttcta | tgttacctat | cggagaagat | 1080 |
| ttagggatta | taccccaaga | cgtcaaaaacg | acattaacac | acttaggaat | ctgtggaacc | 1140 |
| cggattccac | gatgggaacg | caactgggaa | agcgacagtg | ccttcattcc | cctaaaagat | 1200 |
| tataatccac | tttctgtgac | cactctctct | acccacgact | ctgatacggt | tgcccaatgg | 1260 |
| tggctcaatt | cacctaaagga | agctaagcaa | tttgctaaat | ttctacatct | tccttttcaa | 1320 |
| aaaaccctga | ctacagaaac | tcaaatagac | atcttaaaaac | tttctcatga | atcagcatct | 1380 |
| atctttcata | tcaacctctt | taacgattat | ctcgccctct | gcctgattt | agtatcaaaa | 1440 |

| | | | | | | |
|------------|------------|------------|------------|------------|------------|------|
| aatctacaaa | gagaacgcat | taatacacct | gggacaat | ctaaaaagaa | ttgggtcgat | 1500 |
| cgagttcggc | cttccttaga | agaactcgct | attcataaaa | aatttaaatg | ttacattgag | 1560 |
| aagatcctta | caggactgta | a | | | | 1581 |

<210> 482

<211> 1908

<212> DNA

<213> Chlamydia pneumoniae

<400> 482

| | | | | | | |
|-------------|-------------|-------------|-------------|-------------|--------------|------|
| atgatccctt | ttactaaaaac | aataggggttc | cgtttgtggt | tggtttgcgc | cgtttgcctatc | 60 |
| attgcacctc | tagggatcaa | catcgatggt | ttaaacctag | atcaataccg | caccatagtc | 120 |
| tctgctat | ctactgcact | gaaagaaaac | gctgctttca | aagccaatac | tctcactcag | 180 |
| attgtccctt | tgaatgtcga | tggttctatct | ctattttctg | atgtcttaga | tttagatgct | 240 |
| ggtattccag | agactccgaa | cgtttctcctt | agcaatgaaa | tgcagaaaagt | attccaaggg | 300 |
| atctataatg | aaatctcttt | aatcaaggta | ttcccaaagt | gagataaaat | tggttggtgct | 360 |
| tctagcattc | ctgaacactt | aggggaaaac | tataatcaca | aaatagacat | ccctaagaac | 420 |
| actccatttt | tagcagccct | aaaacaatct | cctaaaaatc | aggaagtcct | ttctgtaatg | 480 |
| caagctaattg | tttttgatgc | aaaaactcaa | gaactccaag | ggatcttata | caccacgttc | 540 |
| agtgtcgaga | gcttactcaa | agatctcctg | ataaacaagc | aatcctatct | cactgtaaaa | 600 |
| actgcatcc | tttccaaata | cggcggttatc | ttaaaagctt | ctgatcctgc | tctccatctc | 660 |
| catactgtct | accctgacat | gacgaaaagaa | aaattctgcc | aagtttttct | caatgatgat | 720 |
| ccttgcccta | tagactcaga | attaggtcct | ttaactctct | cccctctgga | tattggagaa | 780 |
| aatttctatt | ctttttaa | caaagatact | gagatttggg | gctgtattga | aaatggtccc | 840 |
| agtatagata | ttgcagtcct | ttcctatgct | aaaaaagaag | agagctttgc | gcctttatgg | 900 |
| cgcagagctc | gcatgtacac | tgccctatttc | ttttgcattc | tcttagggag | cctcatagcc | 960 |
| tttattgtag | caagacgatt | gtcgttacct | atcagaaaac | ttgccactgc | gatgatagaa | 1020 |
| tctaggaaaa | acaaaaactg | cctctatact | gacgactcct | tagggtttga | gatcaacaga | 1080 |
| cttgcccata | tttttaattg | tatggtggag | aatctccaca | aacagcaaca | cctcgctaag | 1140 |
| acgaactttg | agatgaaaga | aaatgcacag | aacgctctac | atttaggaga | gcaggctcag | 1200 |
| cagcgacttc | ttcctaatac | tctccccagc | tatcctcata | tagaactcgc | aaaagcctat | 1260 |
| atccctgcc | ttactgtagg | tggtgatttc | tttgatgttt | ttgttgtagg | agagggttcg | 1320 |
| aaggctcgcc | tattcctgat | tggtgctgac | gcctcaggga | aagggtgtta | tgcttggtgg | 1380 |
| tattcgctat | ttctaataaa | tatgctcaga | acattccttt | ctcgctcttc | gtctcttcaa | 1440 |
| caggcaatcc | aagaaacctc | acgcttattt | tataacaata | caaaaaactc | agggatgttt | 1500 |
| gtcactctat | gtgtgtactg | ttatcatcaa | acttccaaca | ccatggaata | ttattcttgt | 1560 |
| ggacatcctc | ctgcctgcta | cctagatcct | gatggcgaga | cttcttggtc | attccatcct | 1620 |
| ggaatggctt | taggcttcct | tcccgaagtt | gcgaacatca | cttcaaagct | atttcatcct | 1680 |
| aagccagggt | ctctctttgt | cttggtattct | gatgggtatta | cagaagccca | taataacaat | 1740 |
| aacgacatgt | ttggagaaga | gcgcctacaa | gctgcaattc | aaggattgac | agggaaaagt | 1800 |
| gctgctgatg | cogtccacag | gttgatgtta | agtgtaaaaa | cctttgtcgg | gaactcccat | 1860 |
| caacatgacg | acatcacctt | attaatatta | aaggtattag | aatcatga | | 1908 |

<210> 483

<211> 945

<212> DNA

<213> Chlamydia pneumoniae

<400> 483

| | | | | | | |
|------------|-------------|------------|------------|------------|-------------|-----|
| gtgttctcat | acataaaaaa | ccgaattcct | tttaatttgc | tttctctatg | gattgttttg | 60 |
| acactcacgt | tcctagttat | gaaaaccatc | ccaggagatc | ctttcaatga | cgaaggctgc | 120 |
| aatgttcttt | ccgaagaggt | cttacaacc | ctaaagtctc | gatacggttt | agataaacct | 180 |
| ctctatcaac | aatacacaca | atacctccac | tccatcgcaa | aactagattt | tgggaaactcg | 240 |
| ttagtttata | aagatcgcaa | agtaacgaac | atcatttoga | ctgcctttcc | tatatcagca | 300 |
| atcctaggat | tgcaaaagtct | ttttctctcc | ataggagggg | ggatcgctct | cggcaccata | 360 |
| gcagcattaa | aaaaaaagaa | acaaagacgc | tatatcttag | gcgcctctat | actccaaatc | 420 |
| tcgattcctg | cttttatatt | cgcaacactc | ttacaatatg | tctttgctgt | aaaaattcct | 480 |

| | | | | | | |
|------------|------------|------------|------------|------------|-------------|-----|
| cttcttccta | tcgcctgttg | gggaagcttt | actcatacta | tactcccgac | tctcgcaactt | 540 |
| gctgtaactc | ccatggcctt | catcatacac | cttacctact | cttcagtatc | cgcagcatta | 600 |
| aacaaagact | atgtcctact | agcctatgca | aaaggactct | ccccacttaa | agtcgttata | 660 |
| aaacataatt | taccctacgc | catattccca | accatttctt | attccgcatt | cctaactact | 720 |
| acagtgatta | caggaacctt | tgctatcgaa | aatatcttct | gtattcctgg | attaggtaaa | 780 |
| tggtttattt | gtagtatcaa | acaacgagac | taccagtag | cccttggctt | atccgtattt | 840 |
| tatggaacct | tatttatgct | ctcttcttta | ctttctgacc | tgattcaatc | cattatagat | 900 |
| ccgcaaatcc | gttatgcgca | cggaaaggaa | aaaaaaagaa | aataa | | 945 |

<210> 484

<211> 3723

<212> DNA

<213> Chlamydia pneumoniae

<400> 484

| | | | | | | |
|-------------|-------------|-------------|-------------|-------------|-------------|------|
| ttgacctgga | taccccttca | ctgtcattct | caatactctg | ttcttgatgc | aatgagctcc | 60 |
| atcaaagatt | tcgttgcgaa | aggtcaggaa | tttggaaattc | ccgctctggc | tctaacagac | 120 |
| catgggaatc | tttatggagc | tggttgatttc | tataaagaat | gcactcaaaa | agggatccaa | 180 |
| cccatcattg | gttgcgagtg | ttatatgtct | ccaggatcac | gtttcgataa | gaaaaaagag | 240 |
| aagcgtagtc | gtgcagcaca | ccatctcatt | ttattatgta | aaaatgaaca | agggtagccg | 300 |
| aacctttgta | ttttaacctc | cctagcattt | actgaggggt | tctattactt | tctcgggata | 360 |
| gacaaggatc | ttttgagaca | gtactctgaa | ggcttaaatct | gtttatctgg | ttgtttatct | 420 |
| agttctgttt | cagatgctgc | cttaaaatct | ccggaagctc | tgcttcttga | attgcaatgg | 480 |
| tttcaagacc | tattcaaaga | tgattatttc | acagaagtac | aactacacaa | gatgtccgaa | 540 |
| gagagcattg | caggctttaa | agaggaatgg | ttaaagcaag | aatattactc | tctcattgaa | 600 |
| aaacagatca | aagtcaatac | tgcatgttta | gaagcaagta | agcgcttagg | cattcctact | 660 |
| gtagctacga | atgacatcca | ttacatcaat | gcaaacgatt | ggcaagctca | tgaaatcctg | 720 |
| ttgaatgtcc | aatctgggga | gactgtgcgg | attgcgaaac | agaatactca | tatccccaat | 780 |
| cctaaacgaa | aggtctatcg | cagtcgcgag | tactatttta | aatccctgc | gcaaattggca | 840 |
| gagttattta | aagatattcc | tgagggtcatt | tccaacacat | tagaagttgc | caaacggtgt | 900 |
| gattttactt | ttgatttttc | caagaaacac | taccctatct | atgtccctga | atctttaaaa | 960 |
| accttaaaca | gctacacgga | ggaagaccgt | tatcaagctt | ctgcagtctt | cttaaaaacag | 1020 |
| ctagctgaag | aagctttggc | taagaaatac | tcttctgaag | ttcttgctca | tattgctaag | 1080 |
| aaattttccac | atcggggacc | tatcgatatt | gtcaaagaaa | ggatggacat | ggagatggcc | 1140 |
| atcatcattc | ctaaaggaat | gtgtgactat | cttttgattg | tttgggacat | tattcattgg | 1200 |
| gccaaagcaa | atggcattcc | tgtaggccct | ggaagagggt | caggagctgg | atccgtatta | 1260 |
| ctatttttgt | tagggatcac | agaaatcgag | cccatacgat | ttgatttatt | ctttgagaga | 1320 |
| tttatcaatc | ctgagcggtt | gtcttaccoc | gatattgaca | togatatttg | catggcagga | 1380 |
| cgtgaacgtg | tcattaatta | tgcaattgag | cgtcatggca | aagataatgt | agctcaaatc | 1440 |
| attacttttg | gaactatgaa | agccaaaatg | gctgtcaaag | atgtgggaag | aacttttagac | 1500 |
| atggccttat | ctaaagtga | ccacattgcg | aaacatattc | cagattttaa | tactacgttg | 1560 |
| tctaaagctt | tagaaacaga | tcttgacctc | catcagctct | atattaacga | tgccgaatct | 1620 |
| gcacaagtga | ttgatattgg | gctttgctta | gaaggctcca | tacggaatac | aggggttcat | 1680 |
| gctgctggtg | tgattatctg | tgagagaccag | ctgaccaatc | acattccgat | ttgtatttct | 1740 |
| aaagactcca | caatgattac | aacacaatac | tctatgaaac | ccgtggagag | tggttgaatg | 1800 |
| cttaaagtcg | acttattagg | gctcaagact | ttaaccagta | tcaatattgc | aatgtctgca | 1860 |
| attgaaaaga | aaacaggaca | atcgctagct | atggcgacac | tgccctttgga | tgatgccacc | 1920 |
| acattttctc | ttttacatca | gggaaagact | atggggatat | ttcaaattgga | atccaagggg | 1980 |
| atgcaagaat | tagcaaaaata | cctacgcctt | gacctctttg | aggaaatcat | tgctattggg | 2040 |
| gctttatata | gcccaggccc | tatggatatg | attccttctt | ttattaaccg | caagcatggc | 2100 |
| aaagaaatta | tagaatacga | ccatccccct | atggaatcca | ttcttaagga | aacctatgga | 2160 |
| attatggtct | accaagagca | agtcatgcag | attgctggtg | catttagctag | ttattctctt | 2220 |
| ggagaagggtg | atgtattacg | acgtgccatg | gggaagaaag | acttccaaca | gatggagcag | 2280 |
| gagcgcgaaa | agttctgtaa | acgcgcctgc | aataacggca | tagatcctga | gttagcgact | 2340 |
| gtcatctttg | ataagatgga | aaaatttgct | gcctacggct | ttaacaaatc | tcatgctgct | 2400 |
| gcctatggct | tgattactta | tacaacggcg | tatctcaaag | caaattatcc | taaagagtgg | 2460 |
| cttgccgcct | tacttacctg | tgattctgac | gatattgaga | agataggaaa | actgattcga | 2520 |

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<210> 485
<211> 1731
<212> DNA
<213> Chlamydia pneumoniae
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| | | | | | | | |
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| aacttttttg | agaggaaatcc | taaagtgcga | agggtactgc | aaattacagc | cgtagtctta | | 120 |
| ggaatcattg | ccctcttatc | cggatatagta | ctcattatag | gcacccctct | cggagctcct | | 180 |
| ataagtatga | tctctggcgg | atgtctttta | gcttctggag | gcgccttatt | tgttgggtgtg | | 240 |
| acgatttgcta | cgatatttga | agctagaaat | agttataaga | aggccgtgaa | ccaaaagaaa | | 300 |
| ctctcagagc | ctttgatgga | acgccccgaa | ttgaaagcct | tgattatttc | cttagatctg | | 360 |
| aaagagggtat | gggacctaca | tcattctgtt | gtcaaacatc | ttaaaaaatt | agacctgaat | | 420 |
| ctttccaaaa | cccaaaggga | agttctaaat | caaatacaaaa | ttgatgatga | gggacccctcc | | 480 |
| ctaggggaat | gcgccgctat | gatttcagaa | aactacgacg | catgcttaaa | gatgctcgcg | | 540 |
| tatcgtgagg | agctcctgaa | agaacaaaacc | caataccaag | agacacgatt | caatcagaac | | 600 |
| ctcactcata | gaaataaaagt | tttgcctctc | atcctctcaa | ggatcacgga | caatatttct | | 660 |
| aaagcggcgg | gggtcttttc | tttgaaattt | tccacgctaa | gctcgcggat | gtcacgaatt | | 720 |
| cataccacca | ccactgtgat | tctggcttta | agtgccgttg | tttctgctat | ggctgtagca | | 780 |
| gctctaattc | caggtggcat | tttagcacta | cctatacttt | tggctgttgc | tatttctgca | | 840 |
| ggagtgattg | tcaccggact | ttcctatcta | gttcgtcaga | ttttaagtaa | caccaagcgt | | 900 |
| aatcgtcagg | atttttataa | agatttttga | aaaaatgtag | atatagagct | tcttaaccaa | | 960 |
| acgtaacttt | tacagcgatt | cctctttgaa | atgctcaaag | gtgttctgaa | agaagaagaa | | 1020 |
| gaagtctcct | tagaagggtca | agattgggtat | acacaataca | taaccaatgc | acccatagaa | | 1080 |
| aaaagattga | tcgaagagat | cagagttacc | tacaaaagaga | tcgatgctca | gacccaaaaa | | 1140 |
| atgaagacag | acttggaggt | cttagaaaaat | gaggtgcgtt | ccgggagact | gtctgtagcg | | 1200 |
| tcccgtcgg | aagatccaag | tgaactcct | atttttactc | aaggtaaagga | gtttgcaaag | | 1260 |
| ttacgtcgcc | aaacctctca | gaatatatcc | acgattttatg | gtccggacaa | tgaaaatatt | | 1320 |
| gatcccgaa | tttccttacc | ctggatgcct | aaaaaagaag | aagaaataga | ccatagctta | | 1380 |
| gaacctgtta | caaagttgga | acccggttca | agagaagagt | tgttgttgg | agaggggggtc | | 1440 |
| aacccaacct | taagagaact | caatatgaga | attgcacttc | tacaacaaca | actatcaagt | | 1500 |
| gtccgaaaaat | ggagacaccc | tcgaggggaa | cattacggga | atgttatcta | ttcagataca | | 1560 |
| gaactcgatc | gtattcagat | gctagaaggc | gcattttata | atcacctcat | ggaagctcaa | | 1620 |
| gaggaaatca | cccagtcctc | cggagacctt | gttgacattc | aaaaccgat | tttagggatc | | 1680 |
| atagttgaag | gggactcaga | ttcaagaaca | gaagaaagac | ctcaggaaata | g | | 1731 |

<210> 486
 <211> 4224
 <212> DNA
 <213> Chlamydia pneumoniae

<400> 486
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 agcgcagcat tcaactgccaa ggaaacttcg gatgcttcag gaactaccta cactctcact 180
 agcgatgttt ctattacgaa tgtatctgca attactcctg cagataaaag ctgttttaca 240
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 gctaagacta cgacagcagc tctcttagat caaaatacta gcacaaaaaa tggcggggcc 600
 ctctgtagta cagcaaacac tacagtccaa ggaaactcag gaacgggtgac cttctcctca 660
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| | | | | | | |
|------------|------------|-------------|------------|------------|-------------|------|
| cataacaatg | aaggaagttt | ctatgacaat | cctgggttga | aagcaaactt | aaatcttcct | 3060 |
| ttcttagatc | tttcttctac | ttcaggaact | gtaaatttag | acgacttcaa | tccgattcct | 3120 |
| tctagcatgg | ctgctccgga | ttatgggtat | caagggagtt | ggactctggt | tcctaaagta | 3180 |
| ggagctggag | ggaaggtgac | tttggtcgcg | gaatggcaag | cgtaggata | cactcctaaa | 3240 |
| ccagagcttc | gtgcgacttt | agttcctaata | agcctttgga | atgcttatgt | aaacatccat | 3300 |
| tctatacagc | aggagatcgc | cactgcgatg | tcggacgctc | cctcacatcc | agggatttgg | 3360 |
| attggaggta | ttggcaacgc | cttccatcaa | gacaagcaaa | aggaaaatgc | aggattccgt | 3420 |
| ttgatttcca | gaggttatat | tggtgggtgc | agcatgacca | cccctcaaga | atataccttt | 3480 |
| gctggtgcat | tcagccaact | ctttggcaaa | tctaaggatt | acgtagtctc | ggatattaaa | 3540 |
| tctcaagtct | atgcaggatc | tctctgtgct | cagagctctt | atgtcattcc | cctgcatagc | 3600 |
| tcattacgtc | gccacgtcct | ctctaagggtc | cttccagagc | tcccaggaga | aactccccctt | 3660 |
| gttctccatg | gtcaagtttc | ctatggaaga | aaccaccata | atatgacgac | aaagcttgcg | 3720 |
| aacaacacac | aagggaaaac | agactgggac | agccatagct | tcgctgttga | agtcggtggt | 3780 |
| tctcttcctg | tagatctaaa | ctacagatac | cttaccagct | actctcccta | tgtgaaactc | 3840 |
| caagttgtga | gtgtaaatca | aaaaggattc | caagaggttg | ctgctgatcc | acgtatcttt | 3900 |
| gacgctagcc | atctggtcaa | cgtgtctatc | cctatgggac | tcaccttcaa | acacgaatca | 3960 |
| gcaaagcccc | ccagtgtctt | gcttcttact | ttaggttacg | ctgtagatgc | ttaccgggat | 4020 |
| cacctcact | gcctgacctc | cttaacaaat | ggcacctcgt | ggtctacgtt | tgctacaaac | 4080 |
| ttatcacgac | aagctttctt | tgctgaggct | tctggacatc | tgaagttact | tcattggtctt | 4140 |
| gactgcttcg | cttctggaag | ttgtgaactg | cgcagctcct | caagaagcta | taatgcaaac | 4200 |
| tgtggaactc | gttattcttt | ctaa | | | | 4224 |

<210> 487

<211> 804

<212> DNA

<213> Chlamydia pneumoniae

<400> 487

| | | | | | | |
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| atggggcaatt | cagggtttcta | tttacaagat | actcaaaaaca | ctatttttcgc | agataacatt | 60 |
| cgtcttggtc | aaatgaccac | agttcttaaa | aaagacgagg | ttattatagg | cacagatata | 120 |
| actccaacag | taacaaaatt | tagtggcgat | aaggggaattg | taattactac | agactcaacc | 180 |
| ataacaccat | ctagcactac | tttttctttg | gatatggaag | ctgtaatcaa | agaagtaaca | 240 |
| gataaaatct | taactcaaat | tgaagatgag | ttagtcaaag | acattataaa | aaacataact | 300 |
| caaagtctaa | tagaagaagt | aattaagaaa | atacacattg | atccttcttt | ctcatattct | 360 |
| agagcattta | aagatgttaa | tataactaat | aaaattcagt | gcaatgggtct | atttacaata | 420 |
| gaaaatatag | ggaatttaga | cggaggaaca | gaaatagctt | cgtcttcagt | aacacctgat | 480 |
| aatgctaata | gtatgttctt | aatttgtgcg | gatattatag | ccacacgcac | ggaaggaaca | 540 |
| gtggccttgg | cgtaggttaa | agaaggagat | ttatctcctt | gctctattag | ttatggatac | 600 |
| tccgctggat | atccgaatat | aatttcacta | agagcaaccg | tcggaaacaa | aacaactgct | 660 |
| ccagttaaat | tctctttgag | agcaggaggg | atggatagtg | gtgttggtgtg | ggtaaattgct | 720 |
| atgccaaatg | gagaaaaaat | tttaggagtt | gacgcagttt | cgaagattac | tatcttagaa | 780 |
| gtaaaaccac | aaacaaatgg | ttaa | | | | 804 |

<210> 488

<211> 306

<212> DNA

<213> Chlamydia pneumoniae

<400> 488

| | | | | | | |
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| atgaataaca | gacaaaacac | taatgacttt | atcagaattg | tgaaggatgt | tgaaggaggc | 60 |
| tttccagaac | tagatatcaa | agtaaaaaata | gataaagaaa | aagttacttt | tttgacttct | 120 |
| ccaacagagc | tttatcacia | aagtatatct | gtcactactca | atttactaaa | cagcattgaa | 180 |
| tcatctctag | accttttccc | agactctcca | gtagttgaag | aattagaaaa | aaataatctt | 240 |
| aagctcaaaa | aagctctgat | catgctaatt | ctatcaagaa | aagacatgtt | ctcaaaaaca | 300 |
| gaataa | | | | | | 306 |

<210> 489

<211> 806
 <212> DNA
 <213> Chlamydia pneumoniae

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 ccacaagcaa accttactac aggtcttggg gtacaatctt gttatgaatc taatttgaac 180
 gacattttta gaagttcagg aaacgtaagg gatatcattc aagatacgaa gatagaaaac 240
 ttacacatag taccttctag tattctcata gaggagtffc gagaatttaa tagaaatagt 300
 gtactggata caagtcattt gcgttcattt ttacaactta ttgaatccaa ttatgatctg 360
 tgtatttttag aactccacc aagtcctggg acgctcaccg aagaagcctt tattgcatca 420
 gatcatttga ttgtttgtct tactcctgaa ccattttcca tattaggatt acagaaaatc 480
 aaagagtttt gttcagtgtt acctaaaaag aaagacttat cagtgttagg aatagttttt 540
 tctttttggg acggaaggaa ttcaacaaat tcaacctact tgaacattat agaattctatc 600
 tacgaaggga aagtgttatt tagtaaaagta cgaagagaca taacattaag cagatctctt 660
 ttaaaagaaa catccatagc taacgcatac cctaattcta gagcaagtca tgacatactg 720
 cgtctaacaa aggagataga agataaaacta ttcaataaag aaatgtctgc ccaggaagtg 780
 ttgtgagtaa gttagtcaaa gaagca 806

<210> 490
 <211> 293
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 490
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 Arg Tyr Ser Gly Ser Ser Val Lys Gln Phe Cys Pro Tyr Leu Leu Leu
 20 25 30
 Thr Asn Phe Ser Tyr Tyr Ile Gln Thr Phe Ala Lys Leu His Gly Val
 35 40 45
 Pro Val Phe Glu Gly Ser Met Phe Ser Ala Ala His Ala Pro His Leu
 50 55 60
 Lys Thr Ser Ile Leu Asp Phe Lys Leu Gly Ser Pro Gly Ala Ala Leu
 65 70 75 80
 Thr Ile Asp Leu Cys Ser Phe Leu Pro Asp Leu Lys Ala Ala Leu Met
 85 90 95
 Leu Gly Met Cys Gly Gly Leu Arg Ser His Tyr Gln Val Gly Asp Tyr
 100 105 110
 Phe Val Pro Val Ala Ser Ile Arg Gly Glu Gly Thr Ser Asp Ala Tyr
 115 120 125
 Phe Pro Pro Glu Val Pro Ala Leu Ala Asn Phe Val Val Gln Lys Ala
 130 135 140
 Thr Thr Glu Val Leu Glu Asp Lys Lys Ala Asn Tyr His Ile Gly Ile
 145 150 155 160
 Thr His Thr Thr Asn Ile Arg Phe Trp Glu Phe Asn Lys Lys Phe Arg
 165 170 175
 Lys Lys Leu Tyr Glu Thr Lys Ala Gln Ser Ala Glu Met Glu Cys Ala
 180 185 190
 Thr Leu Phe Ala Ala Gly Tyr Arg Arg Asn Leu Pro Ile Gly Ala Leu
 195 200 205
 Leu Leu Ile Ser Asp Leu Pro Leu Arg Lys Glu Gly Ile Lys Thr Lys
 210 215 220
 Ser Ser Gly Asn Phe Ile Phe Asn Thr Tyr Thr Glu Asp His Ile Leu
 225 230 235 240
 Thr Gly Gln Glu Val Ile Glu Asn Leu Glu Lys Val Met Leu Lys Arg

090413 042301

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<210> 491
<211> 394
<212> PRT
<213> Chlamydia pneumoniae
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| <400> | 491 | | | | | | | | | | | | | | |
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| Thr | Ile | Gly | His 20 | Val | Asp | His | Gly | Lys 25 | Thr | Thr | Leu | Thr | Ala 30 | Ala | Ile |
| Thr | Arg | Ala 35 | Leu | Ser | Gly | Asp 40 | Gly | Leu | Ala | Ser | Phe 45 | Arg | Asp | Tyr | Ser |
| Ser | Ile 50 | Asp | Asn | Thr | Pro | Glu 55 | Glu | Lys | Ala | Arg | Gly 60 | Ile | Thr | Ile | Asn |
| Ala 65 | Ser | His | Val | Glu | Tyr 70 | Glu | Thr | Pro | Asn 75 | Arg | His | Tyr | Ala | His | Val 80 |
| Asp | Cys | Pro | Gly | His 85 | Ala | Asp | Tyr | Val | Lys 90 | Asn | Met | Ile | Thr | Gly 95 | Ala |
| Ala | Gln | Met | Asp 100 | Gly | Ala | Ile | Leu | Val 105 | Ser | Ala | Thr | Asp | Gly 110 | Ala | |
| Met | Pro | Gln 115 | Thr | Lys | Glu | His | Ile 120 | Leu | Leu | Ala | Arg | Gln 125 | Val | Gly | Val |
| Pro | Tyr 130 | Ile | Val | Val | Phe | Leu 135 | Asn | Lys | Val | Asp | Met 140 | Ile | Ser | Gln | Glu |
| Asp 145 | Ala | Glu | Leu | Ile | Asp 150 | Leu | Val | Glu | Met | Glu 155 | Leu | Ser | Glu | Leu | Leu 160 |
| Glu | Glu | Lys | Gly | Tyr 165 | Lys | Gly | Cys | Pro | Ile 170 | Ile | Arg | Gly | Ser | Ala | Leu |
| Lys | Ala | Leu | Glu | Gly 180 | Asp | Ala | Asn 185 | Tyr | Ile | Glu | Lys | Val | Arg | Glu | Leu |
| Met | Gln 195 | Ala | Val | Asp | Asp | Asn 200 | Ile | Pro | Thr | Pro | Glu | Arg 205 | Glu | Ile | Asp |
| Lys | Pro 210 | Phe | Leu | Met | Pro | Ile 215 | Glu | Asp | Val | Phe | Ser 220 | Ile | Ser | Gly | Arg |
| Gly 225 | Thr | Val | Val | Thr | Gly 230 | Arg | Ile | Glu | Arg | Gly 235 | Ile | Val | Lys | Val | Ser 240 |
| Asp | Lys | Val | Gln | Leu 245 | Val | Gly | Leu | Gly | Glu 250 | Thr | Lys | Glu | Thr | Ile | Val 255 |
| Thr | Gly | Val | Glu 260 | Met | Phe | Arg | Lys | Glu 265 | Leu | Pro | Glu | Gly | Arg 270 | Ala | Gly |
| Glu | Asn 275 | Val | Gly | Leu | Leu | Leu | Arg 280 | Gly | Ile | Gly | Lys | Asn 285 | Asp | Val | Glu |
| Arg | Gly 290 | Met | Val | Val | Cys | Gln 295 | Pro | Asn | Ser | Val | Lys 300 | Pro | His | Thr | Lys |
| Phe 305 | Lys | Ser | Ala | Val | Tyr 310 | Val | Leu | Gln | Lys | Glu 315 | Glu | Gly | Gly | Arg | His 320 |
| Lys | Pro | Phe | Phe | Ser 325 | Gly | Tyr | Arg | Pro | Gln 330 | Phe | Phe | Phe | Arg | Thr | Thr |
| Asp | Val | Thr | Gly | Val | Val | Thr | Leu | Pro | Glu | Gly | Thr | Glu | Met | Val | Met |

340 345 350
 Pro Gly Asp Asn Val Glu Leu Asp Val Glu Leu Ile Gly Thr Val Ala
 355 360 365
 Leu Glu Glu Gly Met Arg Phe Ala Ile Arg Glu Gly Gly Arg Thr Ile
 370 375 380
 Gly Ala Gly Thr Ile Ser Lys Ile Asn Ala
 385 390

<210> 492
 <211> 560
 <212> PRT
 <213> Chlamydia pneumoniae

<220>
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 <222> (1)...(560)
 <223> Xaa = Any Amino Acid

<400> 492
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 Pro Leu His Phe Gly His Ile Ala Gly Val Tyr Leu Pro Ala Asp Val
 20 25 30
 Tyr Ala Arg Phe Arg Arg Leu Leu Gly Asp Asp Val Leu Tyr Ile Cys
 35 40 45
 Gly Ser Asp Glu Phe Gly Ile Ala Ile Thr Leu Asn Ala Asp Arg Glu
 50 55 60
 Gly Leu Gly Tyr Gln Glu Tyr Val Asp Met Tyr His Lys Leu His Lys
 65 70 75 80
 Asp Thr Phe Glu Lys Leu Gly Phe Ala Leu Asp Phe Phe Ser Arg Thr
 85 90 95
 Thr Asn Pro Phe His Ala Glu Leu Val Gln Asp Phe Tyr Ser Gln Leu
 100 105 110
 Lys Ala Ser Gly Leu Ile Glu Asn Arg Ile Ser Glu Gln Leu Tyr Ser
 115 120 125
 Glu Gln Glu Gln Arg Phe Leu Ala Asp Arg Tyr Val Glu Gly Thr Cys
 130 135 140
 Pro Arg Cys Gly Phe Asp His Ala Arg Gly Asp Glu Cys Gln Ser Cys
 145 150 155 160
 Gly Ala Asp Tyr Glu Ala Ile Asp Leu Ile Gly Pro Lys Ser Lys Ile
 165 170 175
 Ser Gly Val Glu Leu Val Lys Lys Glu Thr Glu His Ser Tyr Phe Leu
 180 185 190
 Leu Asp Arg Met Lys Asp Ala Leu Leu Ser Phe Ile Gln Gly Cys Tyr
 195 200 205
 Leu Pro Asp His Val Arg Lys Phe Val Val Asp Tyr Ile Glu His Val
 210 215 220
 Arg Ser Arg Ala Ile Thr Arg Asp Leu Ser Trp Gly Ile Pro Val Pro
 225 230 235 240
 Asp Phe Pro Gly Lys Val Phe Tyr Val Trp Phe Asp Ala Pro Ile Gly
 245 250 255
 Tyr Ile Ser Gly Thr Met Glu Trp Ala Ala Ser Gln Gly Asn Pro Asp
 260 265 270
 Glu Trp Lys Arg Phe Trp Leu Glu Asp Gly Val Glu Tyr Val Gln Phe
 275 280 285
 Ile Gly Lys Asp Asn Leu Pro Phe His Ser Val Val Phe Pro Ala Met
 290 295 300

0944132-042301

```
<210> 493
<211> 97
<212> PRT
<213> Chlamydia pneumoniae
```

```
<210> 494
<211> 205
<212> PRT
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<213> Chlamydia pneumoniae

<400> 494

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Asn | Lys | Ile | Leu | Val | Asp | Ser | Pro | Phe | Ser | Pro | Asp | His | Gln | Lys |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Cys | Cys | Pro | Lys | Leu | Phe | Thr | Ile | Ser | Ala | Pro | Ala | Gly | Val | Gly | Lys |
| | | 20 | | | | | | 25 | | | | | 30 | | |
| Thr | Thr | Leu | Val | Arg | Met | Leu | Glu | Gln | Glu | Phe | Ser | Ser | Ala | Phe | Ala |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Glu | Thr | Ile | Ser | Val | Thr | Thr | Arg | Lys | Pro | Arg | Glu | Gly | Glu | Val | Pro |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Gly | Lys | Asp | Tyr | His | Phe | Val | Ser | His | Glu | Glu | Phe | Gln | Arg | Leu | Leu |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Asp | Arg | Gln | Ala | Leu | Leu | Glu | Trp | Val | Phe | Leu | Phe | Gly | Glu | Cys | Tyr |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Gly | Thr | Ser | Met | Leu | Glu | Ile | Glu | Arg | Ile | Trp | Ser | Leu | Gly | Lys | His |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Ala | Val | Ala | Val | Ile | Asp | Ile | Gln | Gly | Ala | Leu | Phe | Ile | Arg | Ser | Arg |
| | | | 115 | | | | 120 | | | | | 125 | | | |
| Met | Pro | Ser | Val | Ser | Ile | Phe | Ile | Ala | Pro | Pro | Ser | Gln | Glu | Glu | Leu |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Glu | Arg | Arg | Leu | Ala | Ser | Arg | Gly | Ser | Glu | Glu | Gly | Ser | Gln | Arg | Lys |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Glu | Arg | Leu | Glu | His | Ser | Leu | Ile | Glu | Leu | Ala | Ala | Ala | Asn | Gln | Phe |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Asp | Tyr | Val | Ile | Ile | Asn | Asp | Asp | Leu | Asn | Gln | Ala | Tyr | Arg | Val | Leu |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Lys | Ser | Ile | Phe | Ile | Ala | Glu | Glu | His | Arg | Asn | Ile | Leu | | | |
| | | 195 | | | | | 200 | | | | | 205 | | | |

<210> 495

<211> 602

<212> PRT

<213> Chlamydia pneumoniae

<400> 495

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Lys | Glu | Tyr | Lys | Ile | Glu | Asn | Ile | Arg | Asn | Phe | Ser | Ile | Ile | Ala |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| His | Ile | Asp | His | Gly | Lys | Ser | Thr | Ile | Ala | Asp | Arg | Leu | Leu | Glu | Ser |
| | | 20 | | | | | | 25 | | | | | 30 | | |
| Thr | Ser | Thr | Val | Glu | Glu | Arg | Glu | Met | Arg | Glu | Gln | Leu | Leu | Asp | Ser |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Met | Asp | Leu | Glu | Arg | Glu | Arg | Gly | Ile | Thr | Ile | Lys | Ala | His | Pro | Val |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Thr | Met | Thr | Tyr | Leu | Tyr | Glu | Gly | Glu | Val | Tyr | Gln | Leu | Asn | Leu | Ile |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Asp | Thr | Pro | Gly | His | Val | Asp | Phe | Ser | Tyr | Glu | Val | Ser | Arg | Ser | Leu |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Ser | Ala | Cys | Glu | Gly | Ala | Leu | Leu | Ile | Val | Asp | Ala | Ala | Gln | Gly | Val |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Gln | Ala | Gln | Ser | Leu | Ala | Asn | Val | Tyr | Leu | Ala | Leu | Glu | Arg | Asp | Leu |
| | | | 115 | | | | 120 | | | | | 125 | | | |
| Glu | Ile | Ile | Pro | Val | Leu | Asn | Lys | Ile | Asp | Leu | Pro | Ala | Ala | Asp | Pro |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Val | Arg | Ile | Ala | Gln | Gln | Ile | Glu | Asp | Tyr | Ile | Gly | Leu | Asp | Thr | Thr |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Asn | Ile | Ile | Ala | Cys | Ser | Ala | Lys | Thr | Gly | Gln | Gly | Ile | Pro | Ala | Ile |

0904133 "042301

Leu Lys Ala Ile 165 170 175
 Thr Glu Leu Lys 180 185 190
 Gly Ile Met Val Tyr Val Arg 200 205
 Asp Arg Ile Thr Phe Met Ala Ala Lys Gly Ser Ser Phe Glu Val Leu 240
 Gly Ile Gly Ala Phe Leu Pro Lys Ala Thr Phe Ile Glu Gly Ser Leu 255
 Arg Pro Gly Gln Val Gly Phe Phe Ile Ala Asn Leu Lys Lys Val Lys 270
 Asp Val Lys Ile Gly Asp Thr Val Thr Lys Thr Lys His Pro Ala Lys 285
 Thr Pro Leu Glu Gly Phe Lys Glu Ile Asn Pro Val Val Phe Ala Gly 300
 Ile Tyr Pro Ile Asp Ser Ser Asp Phe Asp Thr Leu Lys Asp Ala Leu 320
 Gly Arg Leu Gln Leu Asn Asp Ser Ala Leu Thr Ile Glu Gln Glu Ser 335
 Ser His Ser Leu Gly Phe Gly Phe Arg Cys Gly Phe Leu Gly Leu Leu 350
 His Leu Glu Ile Ile Phe Glu Arg Ile Ile Arg Glu Phe Asp Leu Asp 365
 Ile Ile Ala Thr Ala Pro Ser Val Ile Tyr Lys Val Val Leu Lys Asn 380
 Gly Lys Val Leu Asp Ile Asp Asn Pro Ser Gly Tyr Pro Asp Pro Ala 400
 Ile Ile Glu His Val Glu Glu Pro Trp Val His Val Asn Ile Ile Thr 415
 Pro Gln Glu Tyr Leu Ser Asn Ile Met Asn Leu Cys Leu Asp Lys Arg 430
 Gly Ile Cys Val Lys Thr Glu Met Leu Asp Gln His Arg Leu Val Leu 445
 Ala Tyr Glu Leu Pro Leu Asn Glu Ile Val Ser Asp Phe Asn Asp Lys 460
 Leu Lys Ser Val Thr Lys Gly Tyr Gly Ser Phe Asp Tyr Arg Leu Gly 480
 Asp Tyr Arg Lys Gly Ser Ile Ile Lys Leu Glu Val Leu Ile Asn Glu 495
 Glu Pro Ile Asp Ala Phe Ser Cys Leu Val His Arg Asp Lys Ala Glu 510
 Ser Arg Gly Arg Ser Ile Cys Glu Lys Leu Val Asp Val Ile Pro Gln 525
 Gln Leu Phe Lys Ile Pro Ile Gln Ala Ala Ile Asn Lys Lys Val Ile 540
 Ala Arg Glu Thr Ile Arg Ala Leu Ser Lys Asn Val Thr Ala Lys Cys 560
 Tyr Gly Gly Asp Ile Thr Arg Lys Arg Lys Leu Trp Glu Lys Gln Lys 575
 Lys Gly Lys Lys Arg Met Lys Glu Phe Gly Lys Val Ser Ile Pro Asn 590
 Thr Ala Phe Ile Glu Val Leu Lys Leu Asp 600

<210> 496

0904132-042301

<211> 324
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 496

Met Glu Leu Leu Pro His Glu Lys Gln Val Val Glu Tyr Glu Lys Ala
 1 5 10 15
 Ile Ala Glu Phe Lys Glu Lys Asn Lys Lys Asn Ser Leu Leu Ser Ser
 20 25 30
 Ser Glu Ile Gln Lys Leu Glu Lys Arg Leu Asp Lys Leu Lys Glu Lys
 35 40 45
 Ile Tyr Ser Asp Leu Thr Pro Trp Glu Arg Val Gln Ile Cys Arg His
 50 55 60
 Pro Ser Arg Pro Arg Thr Val Asn Tyr Ile Glu Gly Met Cys Glu Glu
 65 70 75 80
 Phe Val Glu Leu Cys Gly Asp Arg Thr Phe Arg Asp Asp Pro Ala Val
 85 90 95
 Val Gly Gly Phe Val Lys Ile Gln Gly Gln Arg Phe Val Leu Ile Gly
 100 105 110
 Gln Glu Lys Gly Cys Asp Thr Ala Ser Arg Leu His Arg Asn Phe Gly
 115 120 125
 Met Leu Cys Pro Glu Gly Phe Arg Lys Ala Leu Arg Leu Gly Lys Leu
 130 135 140
 Ala Glu Lys Phe Gly Leu Pro Val Val Phe Leu Val Asp Thr Pro Gly
 145 150 155 160
 Ala Tyr Pro Gly Leu Thr Ala Glu Glu Arg Gly Gln Gly Trp Ala Ile
 165 170 175
 Ala Lys Asn Leu Phe Glu Leu Ser Arg Leu Ala Thr Pro Val Ile Ile
 180 185 190
 Val Val Ile Gly Glu Gly Cys Ser Gly Gly Ala Leu Gly Met Ala Val
 195 200 205
 Gly Asp Ser Val Ala Met Leu Glu His Ser Tyr Tyr Ser Val Ile Ser
 210 215 220
 Pro Glu Gly Cys Ala Ser Ile Leu Trp Lys Asp Pro Lys Lys Asn Ser
 225 230 235 240
 Glu Ala Ala Ser Met Leu Lys Met His Gly Glu Asn Leu Lys Gln Phe
 245 250 255
 Gly Ile Ile Asp Thr Val Ile Lys Glu Pro Ile Gly Gly Ala His His
 260 265 270
 Asp Pro Ala Leu Val Tyr Ser Asn Val Arg Glu Phe Ile Ile Gln Glu
 275 280 285
 Trp Leu Arg Leu Lys Asp Leu Ala Ile Glu Glu Leu Leu Glu Lys Arg
 290 295 300
 Tyr Glu Lys Phe Arg Ser Ile Gly Leu Tyr Glu Thr Thr Ser Glu Ser
 305 310 315 320
 Gly Pro Glu Ala

<210> 497
 <211> 659
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 497

Met Lys Leu Leu Lys Lys Ala Val Leu Arg His Lys Asn His Leu Val
 1 5 10 15
 Ile Leu Gly Cys Ser Leu Leu Ala Ile Leu Gly Leu Thr Phe Ser Ser

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Gln | Met | Glu | Ile | Phe | Ser | Leu | Gly | Met | Ile | Ala | Lys | Thr | Gly | Pro | Asp |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Ala | Phe | Leu | Leu | Phe | Gly | Arg | Lys | Glu | Ser | Gly | Lys | Leu | Val | Lys | Val |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Ser | Glu | Leu | Ser | Gln | Lys | Asp | Ile | Leu | Glu | Asn | Trp | Gln | Ala | Ile | Ser |
| 65 | | | | | 70 | | | | | 75 | | | | 80 | |
| Lys | Asp | Ser | Glu | Thr | Leu | Thr | Val | Ser | Asp | Ala | Thr | Thr | Tyr | Ile | Ala |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Glu | His | Gly | Lys | Ser | Thr | Ala | Ser | Leu | Thr | Ser | Lys | Leu | Ser | Lys | Phe |
| | | | 100 | | | | 105 | | | | | 110 | | | |
| Val | Arg | Asn | Tyr | Ile | Asp | Val | Ser | Arg | Phe | Arg | Gly | Leu | Ala | Ile | Phe |
| | | 115 | | | | | 120 | | | | 125 | | | | |
| Leu | Ile | Cys | Val | Ala | Ile | Phe | Lys | Ala | Val | Thr | Leu | Phe | Phe | Gln | Arg |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Phe | Leu | Gly | Gln | Val | Val | Ala | Ile | Arg | Val | Ser | Arg | Asp | Leu | Arg | Gln |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Asp | Tyr | Phe | Lys | Ala | Leu | Gln | Gln | Leu | Pro | Met | Thr | Phe | Phe | His | Asp |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| His | Asp | Ile | Gly | Asn | Leu | Ser | Asn | Arg | Val | Met | Thr | Asp | Ser | Ala | Ser |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Ile | Ala | Leu | Ala | Val | Asn | Ser | Leu | Met | Ile | Asn | Tyr | Ile | Gln | Ala | Pro |
| | | 195 | | | | | 200 | | | | 205 | | | | |
| Ile | Thr | Phe | Ile | Leu | Thr | Leu | Gly | Val | Cys | Leu | Ser | Ile | Ser | Trp | Lys |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Phe | Ser | Ile | Leu | Ile | Cys | Val | Ala | Phe | Pro | Ile | Phe | Ile | Leu | Pro | Ile |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Val | Val | Ile | Ala | Arg | Lys | Ile | Lys | Asn | Leu | Ala | Lys | Arg | Ile | Gln | Lys |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Ser | Gln | Asp | Ser | Phe | Ser | Ser | Val | Leu | Tyr | Asp | Phe | Leu | Ala | Gly | Val |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Met | Thr | Val | Lys | Val | Phe | Arg | Thr | Glu | Lys | Phe | Ala | Phe | Thr | Lys | Tyr |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Cys | Glu | His | Asn | Asn | Lys | Ile | Ser | Ala | Leu | Glu | Glu | Lys | Ser | Ala | Ala |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Tyr | Gly | Leu | Leu | Pro | Arg | Pro | Leu | Leu | His | Thr | Ile | Ala | Ser | Leu | Phe |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Phe | Ala | Phe | Val | Val | Val | Ile | Gly | Ile | Tyr | Lys | Phe | Ala | Ile | Pro | Pro |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Glu | Glu | Leu | Ile | Val | Phe | Cys | Gly | Leu | Leu | Tyr | Leu | Ile | Tyr | Asp | Pro |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Ile | Lys | Lys | Phe | Gly | Asp | Glu | Asn | Thr | Ser | Ile | Met | Arg | Gly | Cys | Ala |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Ala | Ala | Glu | Arg | Phe | Tyr | Glu | Val | Leu | Asn | His | Pro | Asp | Leu | His | Ser |
| | 370 | | | | | 375 | | | | | | | | | |

```
<210> 498
<211> 411
<212> PRT
<213> Chlamydia pneumoniae
```

| | | | | | | | | | | | | | | | |
|------------|------------|------------|------------|----------|------------|------------|------------|------------|------------|-----|------------|------------|------------|------------|------------|
| <400> 498 | | | | | | | | | | | | | | | |
| Met 1 | Ile | Pro | Thr | Met 5 | Leu | Met | Phe | Phe | Ile 10 | Ile | Cys | Phe | Thr | Leu 15 | Cys |
| Ser | Gly | Phe | Ile 20 | Ser | Leu | Ser | Gln | Ile 25 | Ala | Leu | Phe | Ser | Leu 30 | Pro | Thr |
| Ser | Leu | Ile 35 | Ser | His | Tyr | Lys | Arg 40 | Ser | Lys | Ser | Lys | Lys 45 | Gln | Gln | Arg |
| Val | Ala 50 | Thr | Leu | Leu | Leu | His 55 | Pro | His | His | Leu | Leu 60 | Ile | Thr | Leu | Ile |
| Phe 65 | Cys | Asp | Ile | Gly | Leu 70 | Asn | Ile | Ala | Ile | Gln | Asn | Cys | Phe | Ala | Ile 80 |
| Leu | Phe | Gly | Asp 85 | Ala | Ala | Ser | Trp | Trp | Phe 90 | Thr | Val | Gly | Leu 95 | Pro | Leu |
| Ala | Ile | Thr | Leu 100 | Ile | Leu | Gly | Glu | Ile 105 | Leu | Pro | Lys | Ala | Val 110 | Ala | Leu |
| Pro | Phe | Asn 115 | Thr | Gln | Ile | Ala | Ser | Ser 120 | Val | Ala | Pro | Leu 125 | Ile | Leu | Cys |
| Val | Thr 130 | Lys | Ile | Phe | Lys | Pro 135 | Leu | Leu | His | Trp | Gly 140 | Ile | Val | Gly | Ile |
| Asn 145 | Tyr | Val | Val | Gln | Trp 150 | Ile | Leu | Ser | Lys | Gln | Gln 155 | Ile | Asp | Ile | Ile 160 |
| Gln | Pro | Gln | Glu 165 | Leu | Lys | Glu | Val | Leu | Gln 170 | Ser | Cys | Lys | Asp | Phe 175 | Gly |
| Val | Val | Asn 180 | Gln | Glu | Glu | Ser | Arg | Leu 185 | Leu | Tyr | Gly | Tyr | Leu 190 | Ser | Leu |
| Ser | Asp | Cys 195 | Ser | Val | Lys | Glu | Arg 200 | Met | Gln | Pro | Arg | Gln 205 | Asp | Ile | Leu |

```
<210> 499
<211> 404
<212> PRT
<213> Chlamydia pneumoniae
```

| | | | | | | | | | | | | | | | |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 499 | | | | | | | | | | | | | | | |
| Met | Thr | Asn | Ser | Ala | Leu | Phe | Trp | Ile | Gly | Val | Asn | Ile | Ile | Cys | Ile |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Val | Leu | Gln | Gly | Phe | Tyr | Ser | Met | Met | Glu | Met | Ala | Cys | Val | Ser | Phe |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Asn | Arg | Val | Arg | Leu | Gln | Tyr | Tyr | Leu | Thr | Lys | Asp | His | Lys | Lys | Ala |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Arg | Tyr | Ile | Asn | Phe | Leu | Ile | Arg | Arg | Pro | Tyr | Arg | Leu | Phe | Gly | Thr |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Val | Met | Leu | Gly | Val | Asn | Ile | Ala | Leu | Gln | Val | Gly | Ser | Glu | Ser | Ser |
| 65 | | | | | 70 | | | | 75 | | | | | 80 | |
| Arg | Asn | Cys | Tyr | Arg | Ala | Leu | Gly | Ile | Thr | Pro | Asp | Tyr | Ala | Pro | Phe |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Thr | Gln | Ile | Phe | Ile | Val | Val | Ile | Phe | Ala | Glu | Leu | Leu | Pro | Leu | Thr |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Ile | Ser | Arg | Lys | Ile | Pro | Glu | Lys | Leu | Ala | Leu | Trp | Gly | Ala | Pro | Ile |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Leu | Tyr | Tyr | Ser | His | Tyr | Ile | Phe | Tyr | Pro | Leu | Ile | Gln | Leu | Ile | Gly |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Ser | Leu | Thr | Glu | Gly | Leu | Tyr | Tyr | Leu | Leu | Asn | Ile | Arg | Lys | Glu | Lys |
| 145 | | | | | 150 | | | | | 155 | | | | 160 | |
| Leu | Asn | Ser | Thr | Leu | Ser | Arg | Asp | Glu | Phe | Gln | Lys | Ala | Leu | Glu | Thr |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| His | His | Glu | Glu | Gln | Asp | Phe | Asn | Thr | Ile | Ala | Thr | Asn | Ile | Phe | Ser |
| | | | 180 | | | | | 185 | | | | | 190 | | |


```
<210> 501
<211> 103
<212> PRT
<213> Chlamydia pneumoniae
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<400> 501
Met Ser Phe Lys Arg Phe Leu Gln Gln Ile Pro Val Arg Ile Cys Leu
1 5 10 15
Leu Ile Ile Tyr Leu Tyr Gln Trp Leu Ile Ser Pro Leu Leu Gly Ser
20 25 30

```
<210> 502
<211> 362
<212> PRT
<213> Chlamydia pneumoniae
```

| | | | | | | | | | | | | | | | |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| <400> | 502 | | | | | | | | | | | | | | |
| Met 1 | Ala | Phe | Lys | Arg 5 | Lys | Thr | Arg | Trp | Leu 10 | Trp | Gln | Val | Leu | Ile | Leu |
| Ser | Val | Gly | Leu 20 | Asn | Met | Leu | Phe | Leu 25 | Leu | Leu | Phe | Tyr | Ser 30 | Ala | Ile |
| Phe | Arg | Lys 35 | Asp | Ile | Tyr | Lys | Leu 40 | His | Leu | Phe | Ser | Gly 45 | Pro | Leu | Ile |
| Ala | Lys 50 | Ser | Ser | Arg | Lys | Val 55 | Tyr | Leu | Ser | Glu | Asp 60 | Phe | Leu | Asn | Glu |
| Ile 65 | Ser | Gln | Ala | Ser | Leu 70 | Asp | Asp | Leu | Ile | Ser 75 | Leu | Phe | Lys | Asp | Glu 80 |
| Arg | Tyr | Met | Tyr | Gly 85 | Arg | Pro | Ile | Lys | Leu 90 | Trp | Ala | Leu | Ser | Val 95 | Ala |
| Ile | Ala | Ser | His 100 | His | Ile | Asp | Ile | Thr 105 | Pro | Val | Leu | Ser | Lys 110 | Pro | Leu |
| Thr | Tyr | Thr 115 | Glu | Leu | Lys | Gly | Ser 120 | Ser | Val | Arg | Trp | Leu 125 | Leu | Pro | Asn |
| Ile | Asp 130 | Leu | Lys | Asp | Phe | Pro 135 | Val | Ile | Leu | Asp | Tyr 140 | Leu | Arg | Cys | His |
| Lys 145 | Tyr | Pro | Tyr | Thr | Ser 150 | Lys | Gly | Leu | Phe | Leu 155 | Leu | Ile | Glu | Lys | Met 160 |
| Val | Gln | Glu | Gly | Trp 165 | Val | Asp | Glu | Asp | Cys 170 | Leu | Tyr | His | Phe | Cys 175 | Ser |
| Thr | Pro | Glu | Phe 180 | Leu | Tyr | Leu | Arg | Thr 185 | Leu | Leu | Val | Gly | Ala 190 | Asp | Val |
| Gln | Ala | Ser 195 | Ser | Val | Ala | Ser | Leu 200 | Ala | Arg | Met | Val | Ile 205 | Arg | Cys | Gly |
| Ser | Glu 210 | Arg | Phe | Phe | His | Phe 215 | Cys | Asn | Glu | Glu | Ser 220 | Arg | Thr | Ser | Met |
| Ile 225 | Ser | Ala | Thr | Gln | Arg 230 | Gln | Lys | Val | Leu | Lys 235 | Ser | Tyr | Leu | Asp | Cys 240 |
| Glu | Glu | Ser | Leu | Ala 245 | Ala | Leu | Leu | Leu 250 | Leu | Val | His | Asp | Ser | Asp 255 | Val |
| Val | Leu | His | Glu 260 | Phe | Cys | Asp | Glu 265 | Asp | Leu | Glu | Lys | Val | Ile 270 | Arg | Leu |
| Met | Pro | Gln 275 | Glu | Ser | Pro | Tyr | Ser 280 | Gln | Asn | Phe | Phe | Ser 285 | Arg | Leu | Gln |
| His | Ser 290 | Pro | Arg | Arg | Glu 295 | Leu | Ala | Cys | Met | Ser | Thr 300 | Gln | Arg | Val | Glu |
| Ala 305 | Pro | Arg | Val | Gln 310 | Glu | Asp | Gln | Asp | Glu 315 | Glu | Tyr | Val | Val | Gln | Asp 320 |

```
<210> 503
<211> 582
<212> PRT
<213> Chlamydia pneumoniae
```

| | | | | | | | | | | | | | | | |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-----|
| <400> | 503 | | | | | | | | | | | | | | |
| Met 1 | Ser | Gly | Lys | Lys 5 | Asp | Gly | Val | Arg | Gly 10 | Met | Ile | Phe | Val | Pro 15 | Leu |
| Ser | Ile | Leu | Val 20 | Leu | Ile | Phe | Leu | Pro 25 | Leu | Pro | Gln | Ile | Leu 30 | Leu | Asp |
| Phe | Gly 35 | Leu | Cys | Ile | Ser | Phe 40 | Ala | Leu | Ser | Leu | Leu 45 | Thr | Val | Cys | Trp |
| Val | Phe 50 | Thr | Leu | Asn | Ser 55 | Ser | Asn | Ser | Ala | Lys 60 | Leu | Phe | Pro | Pro | Phe |
| Phe 65 | Leu | Tyr | Leu | Cys 70 | Leu | Leu | Arg | Leu | Gly 75 | Leu | Asn | Leu | Ala | Ser 80 | Thr |
| Arg | Trp | Ile | Val | Ser 85 | Ser | Gly | Thr | Ala | Ser 90 | Ser | Leu | Ile | Val | Ser 95 | Leu |
| Gly | Ser | Phe | Phe 100 | Ser | Leu | Gly | Ser 105 | Leu | Trp | Ala | Ala | Thr 110 | Phe | Ala | Cys |
| Leu | Leu | Leu 115 | Phe | Phe | Val | Asn | Phe 120 | Leu | Met | Val | Ser | Lys 125 | Gly | Ser | Glu |
| Arg | Ile 130 | Ala | Glu | Val | Arg | Ser 135 | Arg | Phe | Phe | Leu | Glu 140 | Ala | Leu | Pro | Ala |
| Lys 145 | Gln | Met | Ala | Leu | Asp 150 | Ser | Asp | Leu | Val | Ser 155 | Gly | Arg | Ala | Ser | Tyr |
| Lys | Ala | Val | Lys 165 | Lys | Gln | Lys | Asn | Ala | Leu 170 | Ile | Glu | Glu | Gly 175 | Asp | Phe |
| Phe | Ser | Ala | Met 180 | Glu | Gly | Val | Phe 185 | Arg | Phe | Val | Lys | Gly 190 | Asp | Ala | Ile |
| Ile | Ser 195 | Cys | Ile | Leu | Leu | Leu | Val 200 | Asn | Val | Val | Ser | Val 205 | Thr | Cys | Leu |
| Tyr | Tyr 210 | Thr | Ser | Gly | Tyr | Ala 215 | Leu | Glu | Gln | Met | Trp 220 | Phe | Thr | Val | Leu |
| Gly 225 | Asp | Ala | Leu | Val 230 | Ser | Gln | Val | Pro | Ala | Leu 235 | Leu | Thr | Ser | Cys | Ala |
| Ala | Ala | Thr | Leu | Ile 245 | Ser | Lys | Ile | Asp | Lys 250 | Glu | Glu | Ser | Leu | Leu 255 | Asn |
| Tyr | Leu | Phe | Glu 260 | Tyr | Tyr | Lys | Gln | Leu 265 | Arg | Gln | His | Phe | Arg 270 | Val | Val |
| Ser | Leu | Leu 275 | Ile | Phe | Ser | Leu | Cys 280 | Cys | Ile | Pro | Ser | Ser 285 | Pro | Lys | Phe |
| Pro | Ile 290 | Val | Leu | Leu | Ala | Ser 295 | Leu | Leu | Trp | Leu | Ala 300 | Tyr | Arg | Lys | Glu |
| Glu 305 | Pro | Ala | Ser | Glu | Asp 310 | Ser | Cys | Ile | Glu | Arg 315 | Ala | Phe | Ser | Tyr | Val |
| Glu | Gly | Ala | Cys | Pro 325 | Lys | Glu | Gln | Glu | Ser 330 | Gln | Phe | Tyr | Gln | Val 335 | Tyr |
| Arg | Ala | Ala | Ser 340 | Glu | Glu | Val | Phe | Glu 345 | Asp | Leu | Gly | Val | Arg 350 | Leu | Pro |

Ala Ile Phe Lys Pro Glu Asn Pro Lys Leu Phe Ser Gly Pro Tyr Thr
 165 170 175
 Leu Val Glu Tyr Phe Pro Gly His Asn Ile His Leu Lys Lys Asn Pro
 180 185 190
 Asn Tyr Tyr Asp Tyr His Cys Val Ser Ile Asn Ser Ile Lys Leu Leu
 195 200 205
 Ile Ile Pro Asp Ile Tyr Thr Ala Ile His Leu Leu Asn Arg Gly Lys
 210 215 220
 Val Asp Trp Val Gly Gln Pro Trp His Gln Gly Ile Pro Trp Glu Leu
 225 230 235 240
 His Lys Gln Ser Gln Tyr His Tyr Tyr Thr Tyr Pro Val Glu Gly Ala
 245 250 255
 Phe Trp Leu Cys Leu Asn Thr Lys Ser Pro His Leu Asn Asp Leu Gln
 260 265 270
 Asn Arg His Arg Leu Ala Thr Cys Ile Asp Lys Arg Ser Ile Ile Glu
 275 280 285
 Glu Ala Leu Gln Gly Thr Gln Gln Pro Ala Glu Thr Leu Ser Arg Gly
 290 295 300
 Ala Pro Gln Pro Asn Gln Tyr Lys Lys Gln Lys Pro Leu Thr Pro Gln
 305 310 315 320
 Glu Lys Leu Val Leu Thr Tyr Pro Ser Asp Ile Leu Arg Cys Gln Arg
 325 330 335
 Ile Ala Glu Ile Leu Lys Glu Gln Trp Lys Ala Ala Gly Ile Asp Leu
 340 345 350
 Ile Leu Glu Gly Leu Glu Tyr His Leu Phe Val Asn Lys Arg Lys Val
 355 360 365
 Gln Asp Tyr Ala Ile Ala Thr Gln Thr Gly Val Ala Tyr Tyr Pro Gly
 370 375 380
 Ala Asn Leu Ile Ser Glu Glu Asp Lys Leu Leu Gln Asn Phe Glu Ile
 385 390 395 400
 Ile Pro Ile Tyr Tyr Leu Ser Tyr Asp Tyr Leu Thr Gln Asp Phe Ile
 405 410 415
 Glu Gly Val Ile Tyr Asn Ala Ser Gly Ala Val Asp Leu Lys Tyr Thr
 420 425 430
 Tyr Phe Pro
 435

<210> 505

<211> 171

<212> PRT

<213> Chlamydia pneumoniae

<400> 505

Met Lys Lys Leu Leu Phe Ser Thr Phe Leu Leu Val Leu Gly Ser Thr
 1 5 10 15
 Ser Ala Ala His Ala Asn Leu Gly Tyr Val Asn Leu Lys Arg Cys Leu
 20 25 30
 Glu Glu Ser Asp Leu Gly Lys Lys Glu Thr Glu Glu Leu Glu Ala Met
 35 40 45
 Lys Gln Gln Phe Val Lys Asn Ala Glu Lys Ile Glu Glu Glu Leu Thr
 50 55 60
 Ser Ile Tyr Asn Lys Leu Gln Asp Glu Asp Tyr Met Glu Ser Leu Ser
 65 70 75 80
 Asp Ser Ala Ser Glu Glu Leu Arg Lys Lys Phe Glu Asp Leu Ser Gly
 85 90 95
 Glu Tyr Asn Ala Tyr Gln Ser Gln Tyr Tyr Gln Ser Ile Asn Gln Ser
 100 105 110

T02E240 "0422301

Asn Val Lys Arg Ile Gln Lys Leu Ile Gln Glu Val Lys Ile Ala Ala
 115 120 125
 Glu Ser Val Arg Ser Lys Glu Lys Leu Glu Ala Ile Leu Asn Glu Glu
 130 135 140
 Ala Val Leu Ala Ile Ala Pro Gly Thr Asp Lys Thr Thr Glu Ile Ile
 145 150 155 160
 Ala Ile Leu Asn Glu Ser Phe Lys Lys Gln Asn
 165 170

<210> 506

<211> 360

<212> PRT

<213> Chlamydia pneumoniae

<400> 506

Met Ser Glu Ala Pro Val Tyr Thr Leu Lys Gln Leu Ala Glu Leu Leu
 1 5 10 15
 Gln Val Glu Val Gln Gly Asn Ile Glu Thr Pro Ile Ser Gly Val Glu
 20 25 30
 Asp Ile Ser Gln Ala Gln Pro His His Ile Ala Phe Leu Asp Asn Glu
 35 40 45
 Lys Tyr Ser Ser Phe Leu Lys Asn Thr Lys Ala Gly Ala Ile Ile Leu
 50 55 60
 Ser Arg Ser Gln Ala Met Gln His Ala His Leu Lys Lys Asn Phe Leu
 65 70 75 80
 Ile Thr Asn Glu Ser Pro Ser Leu Thr Phe Gln Lys Cys Ile Glu Leu
 85 90 95
 Phe Ile Glu Pro Val Thr Ser Gly Phe Pro Gly Ile His Pro Thr Ala
 100 105 110
 Val Ile His Pro Thr Ala Arg Ile Glu Lys Asn Val Thr Ile Glu Pro
 115 120 125
 Tyr Val Val Ile Ser Gln His Ala His Ile Gly Ser Asp Thr Tyr Ile
 130 135 140
 Gly Ala Gly Ser Val Ile Gly Ala His Ser Val Leu Gly Ala Asn Cys
 145 150 155 160
 Leu Ile His Pro Lys Val Val Ile Arg Glu Arg Val Leu Met Gly Asn
 165 170 175
 Arg Val Val Val Gln Pro Gly Ala Val Leu Gly Ser Cys Gly Phe Gly
 180 185 190
 Tyr Ile Thr Asn Ala Phe Gly His His Lys Pro Leu Lys His Leu Gly
 195 200 205
 Tyr Val Ile Val Gly Asp Asp Val Glu Ile Gly Ala Asn Thr Thr Ile
 210 215 220
 Asp Arg Gly Arg Phe Lys Asn Thr Val Ile His Glu Gly Thr Lys Ile
 225 230 235 240
 Asp Asn Gln Val Gln Val Ala His His Val Glu Ile Gly Lys His Ser
 245 250 255
 Ile Ile Val Ala Gln Ala Gly Ile Ala Gly Ser Thr Lys Ile Gly Glu
 260 265 270
 His Val Ile Ile Gly Gly Gln Thr Gly Ile Thr Gly His Ile Ser Ile
 275 280 285
 Ala Asp His Val Ile Met Ile Ala Gln Thr Gly Val Thr Lys Ser Ile
 290 295 300
 Thr Ser Pro Gly Ile Tyr Gly Gly Ala Pro Ala Arg Pro Tyr Gln Glu
 305 310 315 320
 Thr His Arg Leu Ile Ala Lys Ile Arg Asn Leu Pro Lys Thr Glu Glu
 325 330 335

09041132 040301

Arg Leu Ser Lys Leu Glu Lys Gln Val Arg Asp Leu Ser Thr Pro Ser
 340 345 350
 Leu Ala Glu Ile Pro Ser Glu Ile
 355 360

<210> 507
 <211> 399
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 507
 Met Ala Ala Ser Gly Gly Thr Gly Gly Leu Gly Gly Thr Gln Gly Val
 1 5 10 15
 Asn Leu Ala Ala Val Glu Ala Ala Ala Lys Ala Asp Ala Ala Glu
 20 25 30
 Val Val Ala Ser Gln Glu Gly Ser Glu Met Asn Met Ile Gln Gln Ser
 35 40 45
 Gln Asp Leu Thr Asn Pro Ala Ala Ala Thr Arg Thr Lys Lys Lys Glu
 50 55 60
 Glu Lys Phe Gln Thr Leu Glu Ser Arg Lys Lys Gly Glu Ala Gly Lys
 65 70 75 80
 Ala Glu Lys Lys Ser Glu Ser Thr Glu Glu Lys Pro Asp Thr Asp Leu
 85 90 95
 Ala Asp Lys Tyr Ala Ser Gly Asn Ser Glu Ile Ser Gly Gln Glu Leu
 100 105 110
 Arg Gly Leu Arg Asp Ala Ile Gly Asp Asp Ala Ser Pro Glu Asp Ile
 115 120 125
 Leu Ala Leu Val Gln Glu Lys Ile Lys Asp Pro Ala Leu Gln Ser Thr
 130 135 140
 Ala Leu Asp Tyr Leu Val Gln Thr Thr Pro Pro Ser Gln Gly Lys Leu
 145 150 155 160
 Lys Glu Ala Leu Ile Gln Ala Arg Asn Thr His Thr Glu Gln Phe Gly
 165 170 175
 Arg Thr Ala Ile Gly Ala Lys Asn Ile Leu Phe Ala Ser Gln Glu Tyr
 180 185 190
 Ala Asp Gln Leu Asn Val Ser Pro Ser Gly Leu Arg Ser Leu Tyr Leu
 195 200 205
 Glu Val Thr Gly Asp Thr His Thr Cys Asp Gln Leu Leu Ser Met Leu
 210 215 220
 Gln Asp Arg Tyr Thr Tyr Gln Asp Met Ala Ile Val Ser Ser Phe Leu
 225 230 235 240
 Met Lys Gly Met Ala Thr Glu Leu Lys Arg Gln Gly Pro Tyr Val Pro
 245 250 255
 Ser Ala Gln Leu Gln Val Leu Met Thr Glu Thr Arg Asn Leu Gln Ala
 260 265 270
 Val Leu Thr Ser Tyr Asp Tyr Phe Glu Ser Arg Val Pro Ile Leu Leu
 275 280 285
 Asp Ser Leu Lys Ala Glu Gly Ile Gln Thr Pro Ser Asp Leu Asn Phe
 290 295 300
 Val Lys Val Ala Glu Ser Tyr His Lys Ile Ile Asn Asp Lys Phe Pro
 305 310 315 320
 Thr Ala Ser Lys Val Glu Arg Glu Val Arg Asn Leu Ile Gly Asp Asp
 325 330 335
 Val Asp Ser Val Thr Gly Val Leu Asn Leu Phe Phe Ser Ala Leu Arg
 340 345 350
 Gln Thr Ser Ser Arg Leu Phe Ser Ser Ala Asp Lys Arg Gln Gln Leu
 355 360 365

Gly Ala Met Ile Ala Asn Ala Leu Asp Ala Val Asn Ile Asn Asn Glu
 370 375 380
 Asp Tyr Pro Lys Ala Ser Asp Phe Pro Lys Pro Tyr Pro Trp Ser
 385 390 395

<210> 508
 <211> 224
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 508
 Met Thr Ser Trp Ile Glu Leu Leu Asp Lys Gln Ile Glu Asp Gln His
 1 5 10 15
 Met Leu Lys His Glu Phe Tyr Gln Arg Trp Ser Glu Gly Lys Leu Glu
 20 25 30
 Lys Gln Gln Leu Gln Ala Tyr Ala Lys Asp Tyr Tyr Leu His Ile Lys
 35 40 45
 Ala Phe Pro Cys Tyr Leu Ser Ala Leu His Ala Arg Cys Asp Asp Leu
 50 55 60
 Gln Ile Arg Arg Gln Ile Leu Glu Asn Leu Met Asp Glu Glu Ala Gly
 65 70 75 80
 Asn Pro Asn His Ile Asp Leu Trp Arg Gln Phe Ala Leu Ser Leu Gly
 85 90 95
 Val Ser Glu Glu Glu Leu Ala Asn His Glu Phe Ser Gln Ala Ala Gln
 100 105 110
 Asp Met Val Ala Thr Phe Arg Arg Leu Cys Asp Met Pro Gln Leu Ala
 115 120 125
 Val Gly Leu Gly Ala Leu Tyr Thr Tyr Glu Ile Gln Ile Pro Gln Val
 130 135 140
 Cys Val Glu Lys Ile Arg Gly Leu Lys Glu Tyr Phe Gly Val Ser Ala
 145 150 155 160
 Arg Gly Tyr Ala Tyr Phe Thr Val His Gln Glu Ala Asp Ile Lys His
 165 170 175
 Ala Ser Glu Glu Lys Glu Met Leu Gln Thr Leu Val Gly Arg Glu Asn
 180 185 190
 Pro Asp Ala Val Leu Gln Gly Ser Gln Glu Val Leu Asp Thr Leu Trp
 195 200 205
 Asn Phe Leu Ser Ser Phe Ile Asn Ser Thr Glu Pro Cys Ser Cys Lys
 210 215 220

<210> 509
 <211> 246
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 509
 Met Lys Ile Thr Thr Val Lys Thr Pro Lys Ile Tyr Pro Tyr Asp Asp
 1 5 10 15
 Leu Tyr Ser Ile Leu Glu Ser Ser Leu Pro Lys Leu Asn Glu Arg Ser
 20 25 30
 Ile Val Val Ile Thr Ser Lys Ile Val Ser Leu Cys Glu Gly Ala Val
 35 40 45
 Val Glu Leu Glu Lys Val Ser Lys Asp Glu Leu Ile Lys Gln Glu Ala
 50 55 60
 Asp Ala Tyr Val Phe Val Glu Lys Tyr Gly Ile Tyr Leu Thr Lys Lys
 65 70 75 80
 Trp Gly Ile Leu Ile Pro Ser Ala Gly Ile Asp Glu Ser Asn Val Glu

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| | | | | 85 | | | | 90 | | | | | 95 | | | |
| Gly | Tyr | Phe | Val | Leu | Tyr | Pro | Arg | Asp | Phe | Leu | Leu | Ser | Val | Asn | Thr | |
| | | | 100 | | | | | 105 | | | | | 110 | | | |
| Leu | Gly | Asp | Trp | Leu | Arg | Asn | Phe | Tyr | His | Leu | Glu | His | Cys | Gly | Ile | |
| | | 115 | | | | | 120 | | | | | 125 | | | | |
| Ile | Ile | Ser | Asp | Ser | His | Thr | Thr | Pro | Leu | Arg | Arg | Gly | Thr | Met | Gly | |
| | 130 | | | | | 135 | | | | | 140 | | | | | |
| Leu | Gly | Leu | Cys | Trp | Asn | Gly | Phe | Phe | Pro | Leu | Tyr | Asn | Tyr | Val | Gly | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | |
| Lys | Pro | Asp | Cys | Phe | Gly | Arg | Ala | Leu | Lys | Met | Thr | Tyr | Ser | Asn | Leu | |
| | | | 165 | | | | | | 170 | | | | | 175 | | |
| Leu | Asp | Gly | Leu | Ser | Ala | Ala | Ala | Val | Leu | Cys | Met | Gly | Glu | Gly | Asp | |
| | | 180 | | | | | | 185 | | | | 190 | | | | |
| Glu | Gln | Thr | Pro | Ile | Ala | Ile | Ile | Glu | Glu | Ala | Pro | Lys | Ile | Thr | Phe | |
| | 195 | | | | | | 200 | | | | | 205 | | | | |
| His | Ser | Ser | Pro | Thr | Thr | Leu | Gln | Asp | Met | Ser | Thr | Leu | Ala | Ile | Ala | |
| | 210 | | | | | 215 | | | | | 220 | | | | | |
| Glu | Asp | Glu | Asp | Leu | Tyr | Gly | Pro | Leu | Leu | Gln | Ser | Met | Ala | Trp | Glu | |
| 225 | | | | 230 | | | | | | 235 | | | | | 240 | |
| Thr | Pro | Ala | Pro | Thr | Ser | | | | | | | | | | | |
| | | | | 245 | | | | | | | | | | | | |

<210> 510

<211> 353

<212> PRT

<213> Chlamydia pneumoniae

<400> 510

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Met | Asn | Lys | Arg | Gln | Lys | Asp | Lys | Leu | Lys | Ile | Cys | Val | Ile | Ile | Ser | |
| 1 | | | | 5 | | | | 10 | | | | | 15 | | | |
| Thr | Leu | Ile | Leu | Val | Gly | Ile | Phe | Ala | Arg | Ala | Pro | Arg | Gly | Asp | Thr | |
| | | 20 | | | | | 25 | | | | | 30 | | | | |
| Phe | Lys | Thr | Phe | Leu | Lys | Ser | Glu | Glu | Ala | Ile | Ile | Tyr | Ser | Asn | Gln | |
| | 35 | | | | | | 40 | | | | | 45 | | | | |
| Cys | Asn | Glu | Asp | Met | Arg | Lys | Ile | Leu | Cys | Asp | Ala | Ile | Glu | His | Ala | |
| | 50 | | | | | 55 | | | | 60 | | | | | | |
| Asp | Glu | Glu | Ile | Phe | Leu | Arg | Ile | Tyr | Asn | Leu | Ser | Glu | Pro | Lys | Ile | |
| 65 | | | | 70 | | | | 75 | | | | | | 80 | | |
| Gln | Gln | Ser | Leu | Thr | Arg | Gln | Ala | Gln | Ala | Lys | Asn | Lys | Val | Thr | Ile | |
| | | | 85 | | | | | 90 | | | | | 95 | | | |
| Tyr | Tyr | Gln | Lys | Phe | Lys | Ile | Pro | Gln | Ile | Leu | Lys | Gln | Ala | Ser | Asn | |
| | 100 | | | | | | | 105 | | | | | 110 | | | |
| Val | Thr | Leu | Val | Glu | Gln | Pro | Pro | Ala | Gly | Arg | Lys | Leu | Met | His | Gln | |
| | 115 | | | | | 120 | | | | | | 125 | | | | |
| Lys | Ala | Leu | Ser | Ile | Asp | Lys | Lys | Asp | Ala | Trp | Leu | Gly | Ser | Ala | Asn | |
| | 130 | | | | | 135 | | | | | 140 | | | | | |
| Tyr | Thr | Asn | Leu | Ser | Leu | Arg | Leu | Asp | Asn | Asn | Leu | Ile | Leu | Gly | Met | |
| 145 | | | | 150 | | | | | 155 | | | | | 160 | | |
| His | Ser | Ser | Glu | Leu | Cys | Asp | Leu | Ile | Ile | Thr | Asn | Thr | Ser | Gly | Asp | |
| | | | 165 | | | | | 170 | | | | | | 175 | | |
| Phe | Ser | Ile | Lys | Asp | Gln | Thr | Gly | Lys | Tyr | Phe | Val | Leu | Pro | Gln | Asp | |
| | | 180 | | | | | 185 | | | | | | 190 | | | |
| Arg | Lys | Ile | Ala | Ile | Gln | Ala | Val | Leu | Glu | Lys | Ile | Gln | Thr | Ala | Gln | |
| | 195 | | | | | 200 | | | | | | 205 | | | | |
| Lys | Thr | Ile | Gln | Val | Ala | Met | Phe | Ala | Leu | Thr | His | Ser | Glu | Ile | Ile | |
| | 210 | | | | | 215 | | | | | 220 | | | | | |
| Gln | Ala | Leu | His | Gln | Ala | Lys | Gln | Arg | Gly | Ile | His | Val | Asp | Ile | Ile | |

| | | | | | | |
|---|---------------------|---------------------|-----|-----|--|-----|
| 225 | | 230 | | 235 | | 240 |
| Ile Asp Arg Ser His | Ser Lys Leu Thr Phe | Lys Gln Leu Arg Gln | Leu | | | |
| | 245 | 250 | 255 | | | |
| Asn Ile Asn Lys Asp Phe Val Ser Ile Asn Thr Ala Pro Cys Thr Leu | | | | | | |
| | 260 | 265 | 270 | | | |
| His His Lys Phe Ala Val Ile Asp Asn Lys Thr Leu Leu Ala Gly Ser | | | | | | |
| | 275 | 280 | 285 | | | |
| Ile Asn Trp Ser Lys Gly Arg Phe Ser Leu Asn Asp Glu Ser Leu Ile | | | | | | |
| | 290 | 295 | 300 | | | |
| Ile Leu Glu Asn Leu Thr Lys Gln Gln Asn Gln Lys Leu Arg Met Ile | | | | | | |
| 305 | 310 | 315 | 320 | | | |
| Trp Lys Asp Leu Ala Lys His Ser Glu His Pro Thr Val Asp Asp Glu | | | | | | |
| | 325 | 330 | 335 | | | |
| Glu Lys Glu Ile Ile Glu Lys Ser Leu Pro Val Glu Glu Gln Glu Ala | | | | | | |
| | 340 | 345 | 350 | | | |
| Ala | | | | | | |

<210> 511
 <211> 186
 <212> PRT
 <213> Chlamydia pneumoniae

| |
|---|
| <400> 511 |
| Met Ala Leu Asn Phe Lys Ile Asn Arg Gln Ile Arg Ala Pro Lys Val |
| 1 5 10 15 |
| Arg Leu Ile Gly Ser Ala Gly Glu Gln Leu Gly Ile Leu Ala Ile Lys |
| 20 25 30 |
| Asp Ala Leu Asp Leu Ala Arg Glu Ala Gly Leu Asp Leu Val Glu Val |
| 35 40 45 |
| Ala Ser Asn Ser Glu Pro Pro Val Cys Lys Ile Met Asp Tyr Gly Lys |
| 50 55 60 |
| Tyr Arg Tyr Gly Leu Thr Lys Lys Glu Lys Asp Ser Lys Lys Ala Gln |
| 65 70 75 80 |
| His Gln Val Arg Ile Lys Glu Val Lys Leu Lys Pro Asn Ile Asp Glu |
| 85 90 95 |
| Asn Asp Phe Ser Thr Lys Leu Lys Gln Ala Arg Thr Phe Val Glu Lys |
| 100 105 110 |
| Gly Asn Lys Val Lys Ile Thr Cys Met Phe Arg Gly Arg Glu Leu Ala |
| 115 120 125 |
| Tyr Pro Glu His Gly Phe Lys Val Val Gln Lys Met Ser Gln Gly Leu |
| 130 135 140 |
| Glu Asp Ile Gly Phe Val Glu Ala Glu Pro Lys Leu Ala Gly Arg Ser |
| 145 150 155 160 |
| Leu Ile Cys Val Val Ala Pro Gly Thr Val Lys Thr Lys Lys Lys Gln |
| 165 170 175 |
| Glu Lys Ser His Ala Gln Asp Glu Asn Gln |
| 180 185 |

<210> 512
 <211> 276
 <212> PRT
 <213> Chlamydia pneumoniae

<220>
 <221> VARIANT
 <222> (1)...(276)

<223> Xaa = Any Amino Acid

<400> 512

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Gly | Asn | Ser | Gly | Phe | Tyr | Leu | Gln | Asp | Thr | Gln | Asn | Thr | Ile | Phe |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ala | Asp | Asn | Ile | Arg | Leu | Gly | Gln | Met | Thr | Thr | Val | Leu | Lys | Lys | Asp |
| | | 20 | | | | | 25 | | | | | | 30 | | |
| Glu | Val | Ile | Ile | Gly | Thr | Asp | Thr | Thr | Pro | Thr | Val | Thr | Lys | Phe | Ser |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Gly | Asp | Lys | Gly | Ile | Val | Ile | Thr | Thr | Asp | Ser | Thr | Ile | Thr | Pro | Ser |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Ser | Thr | Thr | Phe | Ser | Leu | Asp | Met | Glu | Ala | Val | Ile | Lys | Glu | Val | Thr |
| 65 | | | | | 70 | | | | 75 | | | | | | 80 |
| Asp | Lys | Ile | Leu | Thr | Gln | Ile | Glu | Asp | Glu | Leu | Val | Lys | Asp | Ile | Ile |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Lys | Asn | Ile | Thr | Gln | Ser | Leu | Ile | Glu | Glu | Val | Ile | Lys | Lys | Ile | His |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Ile | Asp | Pro | Ser | Phe | Ser | Tyr | Ser | Arg | Ala | Phe | Lys | Asp | Val | Asn | Ile |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Thr | Asn | Lys | Ile | Gln | Cys | Asn | Gly | Leu | Phe | Thr | Lys | Glu | Asn | Ile | Gly |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Asn | Leu | Asp | Gly | Gly | Thr | Glu | Ile | Ala | Ser | Ser | Ser | Val | Thr | Pro | Asp |
| 145 | | | | | 150 | | | | 155 | | | | | | 160 |
| Asn | Ala | Asn | Ser | Met | Phe | Leu | Ile | Cys | Ala | Asp | Ile | Ile | Ala | Thr | Arg |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Met | Glu | Gly | Thr | Val | Ala | Leu | Ala | Leu | Val | Lys | Glu | Gly | Asp | Leu | Ser |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Pro | Cys | Ser | Ile | Ser | Tyr | Gly | Tyr | Ser | Ala | Gly | Tyr | Pro | Asn | Ile | Ile |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Ser | Leu | Arg | Ala | Thr | Val | Gly | Asn | Lys | Thr | Thr | Ala | Pro | Val | Lys | Phe |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Ser | Leu | Arg | Ala | Gly | Gly | Met | Asp | Ser | Gly | Val | Val | Trp | Val | Asn | Ala |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Met | Pro | Asn | Gly | Glu | Lys | Ile | Leu | Gly | Val | Asp | Ala | Val | Ser | Lys | Ile |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Thr | Ile | Leu | Glu | Val | Lys | Pro | Gln | Thr | Asn | Gly | Thr | Xaa | Xaa | Xaa | Xaa |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Phe | Xaa | Xaa | Xaa | | | | | | | | | | | | |
| | | | 275 | | | | | | | | | | | | |

<210> 513

<211> 1044

<212> PRT

<213> Chlamydia pneumoniae

<400> 513

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Val | Glu | Val | Glu | Glu | Lys | His | Tyr | Thr | Ile | Val | Lys | Arg | Asn | Gly |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Met | Phe | Val | Pro | Phe | Asn | Gln | Asp | Arg | Ile | Phe | Gln | Ala | Leu | Glu | Ala |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Ala | Phe | Arg | Asp | Thr | Arg | Ser | Leu | Glu | Thr | Ser | Ser | Pro | Leu | Pro | Lys |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Asp | Leu | Glu | Glu | Ser | Ile | Ala | Gln | Ile | Thr | His | Lys | Val | Val | Lys | Glu |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Val | Leu | Ala | Lys | Ile | Ser | Glu | Gly | Gln | Val | Val | Thr | Val | Glu | Arg | Ile |
| 65 | | | | | 70 | | | | 75 | | | | | | 80 |
| Gln | Asp | Leu | Val | Glu | Ser | Gln | Leu | Tyr | Ile | Ser | Gly | Leu | Gln | Asp | Val |

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| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Ala | Arg | Asp | Tyr | Ile | Val | Tyr | Arg | Asp | Gln | Arg | Lys | Ala | Glu | Arg | Gly |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Asn | Ser | Ser | Ser | Ile | Ile | Ala | Ile | Ile | Arg | Arg | Asp | Gly | Gly | Ser | Ala |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Lys | Phe | Asn | Pro | Met | Lys | Ile | Ser | Ala | Ala | Leu | Glu | Lys | Ala | Phe | Arg |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Ala | Thr | Leu | Gln | Ile | Asn | Gly | Met | Thr | Pro | Pro | Ala | Thr | Leu | Ser | Glu |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ile | Asn | Asp | Leu | Thr | Leu | Arg | Ile | Val | Glu | Asp | Val | Leu | Ser | Leu | His |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Gly | Glu | Glu | Ala | Ile | Asn | Leu | Glu | Glu | Ile | Gln | Asp | Ile | Val | Glu | Lys |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Gln | Leu | Met | Val | Ala | Gly | Tyr | Tyr | Asp | Val | Ala | Lys | Asn | Tyr | Ile | Leu |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Tyr | Arg | Glu | Ala | Arg | Ala | Arg | Ala | Arg | Ala | Asn | Lys | Asp | Gln | Asp | Gly |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Gln | Glu | Glu | Phe | Val | Pro | Gln | Glu | Glu | Thr | Tyr | Val | Val | Gln | Lys | Glu |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Asp | Gly | Thr | Thr | Tyr | Leu | Leu | Arg | Lys | Thr | Asp | Leu | Glu | Lys | Arg | Phe |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Ser | Trp | Ala | Cys | Lys | Arg | Phe | Pro | Lys | Thr | Thr | Asp | Ser | Gln | Leu | Leu |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Ala | Asp | Met | Ala | Phe | Met | Asn | Leu | Tyr | Ser | Gly | Ile | Lys | Glu | Asp | Glu |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Val | Thr | Thr | Ala | Cys | Ile | Met | Ala | Ala | Arg | Ala | Asn | Ile | Glu | Arg | Glu |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Pro | Asp | Tyr | Ala | Phe | Ile | Ala | Ala | Glu | Leu | Leu | Thr | Ser | Ser | Leu | Tyr |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Glu | Glu | Thr | Leu | Gly | Cys | Ser | Ser | Gln | Asp | Pro | Asn | Leu | Ser | Glu | Ile |
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| His | Lys | Lys | His | Phe | Lys | Glu | Tyr | Ile | Leu | Asn | Gly | Glu | Glu | Tyr | Arg |
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| Leu | Tyr | Asp | Arg | Tyr | Phe | Asn | Leu | His | Glu | Gly | Arg | Arg | Leu | Glu | Thr |
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| Ala | Gln | Ile | Phe | Trp | Met | Arg | Val | Ser | Met | Gly | Leu | Ala | Leu | Asn | Glu |
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| | | | 420 | | | | | 425 | | | | | 430 | | |
| Thr | Phe | Arg | Tyr | Thr | Pro | Ala | Thr | Pro | Thr | Leu | Phe | Asn | Ser | Gly | Met |
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| | | | | | | | | | | | | | | | |
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| Thr | His | Asp | Ile | Asn | Thr | Ala | Ser | Trp | Ile | Pro | Asp | Leu | Phe | Phe | Lys |
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| Arg | Leu | Glu | Lys | Lys | Gly | Met | Trp | Thr | Leu | Phe | Ser | Pro | Asp | Asp | Val |
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| Pro | Gly | Leu | His | Glu | Ala | Tyr | Gly | Leu | Glu | Phe | Glu | Lys | Leu | Tyr | Glu |
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| Glu | Tyr | Glu | Arg | Lys | Val | Glu | Ser | Gly | Glu | Ile | Arg | Leu | Tyr | Lys | Lys |
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| Val | Glu | Ala | Glu | Val | Leu | Trp | Arg | Lys | Met | Leu | Ser | Met | Leu | Tyr | Glu |
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| Thr | Gly | His | Pro | Trp | Ile | Thr | Phe | Lys | Asp | Pro | Ser | Asn | Ile | Arg | Ser |
| | | | | 645 | | | | | 650 | | | | | | 655 |
| Asn | Gln | Asp | His | Val | Gly | Val | Val | Arg | Cys | Ser | Asn | Leu | Cys | Thr | Glu |
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| Ile | Leu | Leu | Asn | Cys | Ser | Glu | Ser | Glu | Thr | Ala | Val | Cys | Asn | Leu | Gly |
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| Lys | Leu | Lys | Glu | Thr | Ile | Ser | Ile | Ala | Ile | Arg | Ile | Leu | Asp | Asn | Val |
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| | | | | 725 | | | | | 730 | | | | | | 735 |
| Thr | His | Arg | Ala | Val | Gly | Leu | Gly | Val | Met | Gly | Phe | Gln | Asp | Val | Leu |
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| Tyr | Glu | Leu | Asn | Ile | Ser | Tyr | Ala | Ser | Gln | Glu | Ala | Val | Glu | Phe | Ser |
| | | 755 | | | | | 760 | | | | | 765 | | | |
| Asp | Glu | Cys | Ser | Glu | Ile | Ile | Ala | Tyr | Tyr | Ala | Ile | Leu | Ala | Ser | Ser |
| | 770 | | | | | 775 | | | | | 780 | | | | |
| Leu | Leu | Ala | Lys | Glu | Arg | Gly | Thr | Tyr | Ala | Ser | Tyr | Ser | Gly | Ser | Lys |
| 785 | | | | | 790 | | | | | 795 | | | | | 800 |
| Trp | Asp | Arg | Gly | Tyr | Leu | Pro | Leu | Asp | Thr | Ile | Glu | Leu | Leu | Lys | Glu |
| | | | | 805 | | | | | 810 | | | | | 815 | |
| Thr | Arg | Gly | Glu | His | Asn | Val | Leu | Val | Asp | Thr | Ser | Ser | Lys | Lys | Asp |
| | | | 820 | | | | | 825 | | | | | 830 | | |
| Trp | Thr | Pro | Val | Arg | Asp | Thr | Ile | Gln | Lys | Tyr | Gly | Met | Arg | Asn | Ser |
| | | 835 | | | | | 840 | | | | | 845 | | | |
| Gln | Val | Met | Ala | Ile | Ala | Pro | Thr | Ala | Thr | Ile | Ser | Asn | Ile | Ile | Gly |
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| Val | Thr | Gln | Ser | Ile | Glu | Pro | Met | Tyr | Lys | His | Leu | Phe | Val | Lys | Ser |
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| Asn | Leu | Ser | Gly | Glu | Phe | Thr | Ile | Pro | Asn | Thr | Tyr | Leu | Ile | Lys | Lys |
| | | | | 885 | | | | | 890 | | | | | 895 | |
| Leu | Lys | Glu | Leu | Gly | Leu | Trp | Asp | Ala | Glu | Met | Leu | Asp | Asp | Leu | Lys |
| | | 900 | | | | | | 905 | | | | | 910 | | |
| Tyr | Phe | Asp | Gly | Ser | Leu | Leu | Glu | Ile | Glu | Arg | Ile | Pro | Asn | His | Leu |
| | | 915 | | | | | 920 | | | | | 925 | | | |
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| | 930 | | | | | 935 | | | | | | 940 | | | |
| Glu | Cys | Thr | Ser | Arg | Arg | Gln | Lys | Trp | Ile | Asp | Met | Gly | Val | Ser | Leu |
| 945 | | | | | 950 | | | | | 955 | | | | | 960 |
| Asn | Leu | Tyr | Leu | Ala | Glu | Pro | Asp | Gly | Lys | Lys | Leu | Ser | Asn | Met | Tyr |
| | | | | 965 | | | | | 970 | | | | | 975 | |
| Leu | Thr | Ala | Trp | Lys | Lys | Gly | Leu | Lys | Thr | Thr | Tyr | Tyr | Leu | Arg | Ser |
| | | | 980 | | | | | 985 | | | | | 990 | | |
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<213> Chlamydia pneumoniae
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| Lys | Lys | Gly | Leu | Val | Asn | Cys | Asn | Gln | Val | Asp | Val | Asn | Gln | Leu | Val |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Pro | Ile | Lys | Tyr | Lys | Trp | Ala | Trp | Glu | His | Tyr | Leu | Asn | Gly | Cys | Ala |
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| Asn | Asn | Trp | Leu | Pro | Thr | Glu | Val | Pro | Met | Ala | Arg | Asp | Ile | Glu | Leu |
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| Trp | Lys | Ser | Asp | Glu | Leu | Ser | Glu | Asp | Glu | Arg | Arg | Val | Ile | Leu | Leu |
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| Asn | Leu | Gly | Phe | Phe | Ser | Thr | Ala | Glu | Ser | Leu | Val | Gly | Asn | Asn | Ile |
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| Leu | Leu | Arg | Gln | Ala | Phe | Glu | Glu | Ala | Val | His | Thr | His | Thr | Phe | Leu |
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| Tyr | Ile | Cys | Glu | Ser | Leu | Gly | Leu | Asp | Glu | Gly | Glu | Val | Phe | Asn | Ala |
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| Tyr | Asn | Glu | Arg | Ala | Ser | Ile | Arg | Ala | Lys | Asp | Asp | Phe | Gln | Met | Thr |
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| Leu | Thr | Val | Asp | Val | Leu | Asp | Pro | Asn | Phe | Ser | Val | Gln | Ser | Ser | Glu |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Gly | Leu | Gly | Gln | Phe | Ile | Lys | Asn | Leu | Val | Gly | Tyr | Tyr | Ile | Ile | Met |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Glu | Gly | Ile | Phe | Phe | Tyr | Ser | Gly | Phe | Val | Met | Ile | Leu | Ser | Phe | His |
| | | | 195 | | | | 200 | | | | | 205 | | | |
| Arg | Gln | Asn | Lys | Met | Thr | Gly | Ile | Gly | Glu | Gln | Tyr | Gln | Tyr | Ile | Leu |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Arg | Asp | Glu | Thr | Ile | His | Leu | Asn | Phe | Gly | Ile | Asp | Leu | Ile | Asn | Gly |
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| Ile | Lys | Glu | Glu | Asn | Pro | Glu | Val | Trp | Thr | Thr | Glu | Leu | Gln | Glu | Glu |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Ile | Val | Ala | Leu | Ile | Glu | Lys | Ala | Val | Glu | Leu | Glu | Ile | Glu | Tyr | Ala |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Lys | Asp | Cys | Leu | Pro | Arg | Gly | Ile | Leu | Gly | Leu | Arg | Ser | Ser | Met | Phe |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Ile | Asp | Tyr | Val | Arg | His | Ile | Ala | Asp | Arg | Arg | Leu | Glu | Arg | Ile | Gly |
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| Leu | Lys | Pro | Ile | Tyr | His | Ser | Arg | Asn | Pro | Phe | Pro | Trp | Met | Ser | Glu |
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| Thr | Met | Asp | Leu | Asn | Lys | Glu | Lys | Asn | Phe | Glu | Thr | Arg | Val | Thr | |
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340

345

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 <213> Chlamydia pneumoniae

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| Gln | Asn | Ala | Asn | Ser | Arg | Pro | Cys | Ile | Leu | Ser | Met | Asn | Arg | Met | Ile |
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| His | Asp | Cys | Val | Glu | Arg | Val | Val | Gly | Asn | Arg | Leu | Ala | Thr | Ala | Val |
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| Leu | Ile | Lys | Gly | Ser | Leu | Asp | Pro | His | Ala | Tyr | Glu | Met | Val | Lys | Gly |
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| Asp | Lys | Asp | Lys | Ile | Ala | Gly | Ser | Ala | Val | Ile | Phe | Cys | Asn | Gly | Leu |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Gly | Leu | Glu | His | Thr | Leu | Ser | Leu | Arg | Lys | His | Leu | Glu | Asn | Asn | Pro |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Asn | Ser | Val | Lys | Leu | Gly | Glu | Arg | Leu | Ile | Ala | Arg | Gly | Ala | Phe | Val |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Pro | Leu | Glu | Glu | Asp | Gly | Ile | Cys | Asp | Pro | His | Ile | Trp | Met | Asp | Leu |
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| Ser | Ile | Trp | Lys | Glu | Ala | Val | Ile | Glu | Ile | Thr | Glu | Val | Leu | Ile | Glu |
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| Lys | Phe | Pro | Glu | Trp | Ser | Ala | Glu | Phe | Lys | Ala | Asn | Ser | Glu | Glu | Leu |
| | | | 165 | | | | | | 170 | | | | | 175 | |
| Val | Cys | Glu | Met | Ser | Ile | Leu | Asp | Ser | Trp | Ala | Lys | Gln | Cys | Leu | Ser |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Thr | Ile | Pro | Glu | Asn | Leu | Arg | Tyr | Leu | Val | Ser | Gly | His | Asn | Ala | Phe |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Ser | Tyr | Phe | Thr | Arg | Arg | Tyr | Leu | Ala | Thr | Pro | Glu | Glu | Val | Ala | Ser |
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| Gly | Ala | Trp | Arg | Ser | Arg | Cys | Ile | Ser | Pro | Glu | Gly | Leu | Ser | Pro | Glu |
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| | | | | 245 | | | | | 250 | | | | | 255 | |
| Glu | His | Asp | Val | Ser | Val | Val | Phe | Pro | Glu | Asp | Thr | Leu | Asn | Gln | Asp |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Ala | Leu | Lys | Lys | Ile | Val | Ser | Ser | Leu | Lys | Lys | Ser | His | Leu | Val | Arg |
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| Lys | Leu | Ile | Gly | Thr | Ser | Pro | Lys | His | Gly | Ile | Tyr | Leu | Pro | Leu | Phe |
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| Ser | Ile | His | Thr | Lys | Asn | Ser | Cys | Gly | Ile | Gly | Glu | Phe | Leu | Asp | Leu |
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| Tyr | Trp | Leu | Tyr | Pro | Tyr | Gly | Thr | Phe | Arg | Ala | Ile | Lys | His | His | Met |
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| His | Gly | Glu | Pro | Ile | Asn | Asn | Trp | Pro | Lys | Ser | Leu | Thr | Asp | Gln | Glu |
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| Tyr | Ala | Asp | Gln | His | His | Val | Leu | Leu | Lys | Gly | Asp | Leu | Pro | Ile | Leu |
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| Gln | Asn | Trp | His | Leu | Pro | Ile | Tyr | Asn | Phe | Ser | Gln | Leu | Ala | Lys | Asp |
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| Lys | Thr | Thr | Leu | Thr | His | Leu | Gly | Ile | Cys | Gly | Thr | Arg | Ile | Pro | Arg |
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| Tyr | Asn | Pro | Leu | Ser | Val | Thr | Thr | Leu | Ser | Thr | His | Asp | Ser | Asp | Thr |
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098411.042301

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 Lys Phe Leu His Leu Pro Phe Gln Lys Thr Leu Thr Thr Glu Thr Gln
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| Val | Phe | Gln | Gly | Ile | Tyr | Asn | Glu | Ile | Ser | Leu | Ile | Lys | Val | Phe | Pro |
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| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Gln | Ala | Asn | Val | Phe | Asp | Ala | Lys | Thr | Gln | Glu | Leu | Gln | Gly | Ile | Leu |
| | | | 165 | | | | | 170 | | | | | | 175 | |
| Tyr | Thr | Thr | Phe | Ser | Ala | Glu | Ser | Leu | Leu | Lys | Asp | Leu | Leu | Ile | Asn |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Lys | Gln | Ser | Tyr | Leu | Thr | Val | Lys | Thr | Ala | Ile | Leu | Ser | Lys | Tyr | Gly |
| | 195 | | | | | 200 | | | | | | 205 | | | |
| Val | Ile | Leu | Lys | Ala | Ser | Asp | Pro | Ala | Leu | His | Leu | His | Thr | Val | Tyr |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Pro | Asp | Met | Thr | Lys | Glu | Lys | Phe | Cys | Gln | Val | Phe | Leu | Asn | Asp | Asp |
| 225 | | | | | 230 | | | | 235 | | | | | | 240 |
| Pro | Cys | Pro | Ile | Asp | Ser | Glu | Leu | Gly | Pro | Leu | Thr | Leu | Ser | Pro | Leu |
| | | | 245 | | | | | 250 | | | | | | 255 | |
| Asp | Ile | Gly | Glu | Asn | Phe | Tyr | Ser | Phe | Lys | Ile | Lys | Asp | Thr | Glu | Ile |
| | | 260 | | | | | 265 | | | | | 270 | | | |
| Trp | Gly | Cys | Ile | Glu | Asn | Val | Pro | Ser | Ile | Asp | Ile | Ala | Val | Leu | Ser |
| | 275 | | | | | 280 | | | | | | 285 | | | |
| Tyr | Ala | Lys | Lys | Glu | Glu | Ser | Phe | Ala | Pro | Leu | Trp | Arg | Arg | Ala | Arg |
| | 290 | | | | 295 | | | | | | 300 | | | | |
| Met | Tyr | Thr | Ala | Tyr | Phe | Phe | Cys | Ile | Leu | Leu | Gly | Ser | Leu | Ile | Ala |
| 305 | | | | 310 | | | | | 315 | | | | | | 320 |
| Phe | Ile | Val | Ala | Arg | Arg | Leu | Ser | Leu | Pro | Ile | Arg | Lys | Leu | Ala | Thr |
| | | | 325 | | | | | | 330 | | | | | 335 | |
| Ala | Met | Ile | Glu | Ser | Arg | Lys | Asn | Lys | Asn | Cys | Leu | Tyr | Thr | Asp | Asp |
| | | 340 | | | | | | 345 | | | | | 350 | | |
| Ser | Leu | Gly | Phe | Glu | Ile | Asn | Arg | Leu | Gly | His | Ile | Phe | Asn | Ala | Met |
| | | 355 | | | | 360 | | | | | | 365 | | | |
| Val | Glu | Asn | Leu | His | Lys | Gln | Gln | His | Leu | Ala | Lys | Thr | Asn | Phe | Glu |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Met | Lys | Glu | Asn | Ala | Gln | Asn | Ala | Leu | His | Leu | Gly | Glu | Gln | Ala | Gln |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Gln | Arg | Leu | Leu | Pro | Asn | Thr | Leu | Pro | Ser | Tyr | Pro | His | Ile | Glu | Leu |
| | | | 405 | | | | | 410 | | | | | | 415 | |
| Ala | Lys | Ala | Tyr | Ile | Pro | Ala | Ile | Thr | Val | Gly | Gly | Asp | Phe | Phe | Asp |
| | | 420 | | | | | | 425 | | | | 430 | | | |
| Val | Phe | Val | Val | Gly | Glu | Gly | Ser | Lys | Ala | Arg | Leu | Phe | Leu | Ile | Val |
| | 435 | | | | | 440 | | | | | | 445 | | | |
| Ala | Asp | Ala | Ser | Gly | Lys | Gly | Val | Asn | Ala | Cys | Gly | Tyr | Ser | Leu | Phe |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Leu | Lys | Asn | Met | Leu | Arg | Thr | Phe | Leu | Ser | Arg | Ser | Ser | Ser | Leu | Gln |
| 465 | | | | 470 | | | | | 475 | | | | | | 480 |
| Gln | Ala | Ile | Gln | Glu | Thr | Ser | Arg | Leu | Phe | Tyr | Asn | Asn | Thr | Lys | Asn |
| | | | 485 | | | | | 490 | | | | | | 495 | |
| Ser | Gly | Met | Phe | Val | Thr | Leu | Cys | Val | Tyr | Cys | Tyr | His | Gln | Thr | Ser |
| | | 500 | | | | | | 505 | | | | | 510 | | |
| Asn | Thr | Met | Glu | Tyr | Tyr | Ser | Cys | Gly | His | Pro | Pro | Ala | Cys | Tyr | Leu |
| | | 515 | | | | | 520 | | | | | 525 | | | |

0984133-042301

Asp Pro Asp Gly Glu Thr Ser Trp Leu Phe His Pro Gly Met Ala Leu
 530 535 540
 Gly Phe Leu Pro Glu Val Ala Asn Ile Thr Ser Lys Leu Phe His Pro
 545 550 555 560
 Lys Pro Gly Ser Leu Phe Val Leu Tyr Ser Asp Gly Ile Thr Glu Ala
 565 570 575
 His Asn Asn Asn Asn Asp Met Phe Gly Glu Glu Arg Leu Gln Ala Ala
 580 585 590
 Ile Gln Gly Leu Thr Gly Lys Ser Ala Ala Asp Ala Val His Arg Leu
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 Met Leu Ser Val Lys Thr Phe Val Gly Asn Ser His Gln His Asp Asp
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<210> 521

<211> 314

<212> PRT

<213> Chlamydia pneumoniae

<400> 521

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 Asp Pro Phe Asn Asp Glu Gly Cys Asn Val Leu Ser Glu Glu Val Leu
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 Gln Thr Leu Lys Ser Arg Tyr Gly Leu Asp Lys Pro Leu Tyr Gln Gln
 50 55 60
 Tyr Thr Gln Tyr Leu His Ser Ile Ala Lys Leu Asp Phe Gly Asn Ser
 65 70 75 80
 Leu Val Tyr Lys Asp Arg Lys Val Thr Asn Ile Ile Ser Thr Ala Phe
 85 90 95
 Pro Ile Ser Ala Ile Leu Gly Leu Gln Ser Leu Phe Leu Ser Ile Gly
 100 105 110
 Gly Gly Ile Ala Leu Gly Thr Ile Ala Ala Leu Lys Lys Lys Lys Gln
 115 120 125
 Arg Arg Tyr Ile Leu Gly Ala Ser Ile Leu Gln Ile Ser Ile Pro Ala
 130 135 140
 Phe Ile Phe Ala Thr Leu Leu Gln Tyr Val Phe Ala Val Lys Ile Pro
 145 150 155 160
 Leu Leu Pro Ile Ala Cys Trp Gly Ser Phe Thr His Thr Ile Leu Pro
 165 170 175
 Thr Leu Ala Leu Ala Val Thr Pro Met Ala Phe Ile Ile Gln Leu Thr
 180 185 190
 Tyr Ser Ser Val Ser Ala Ala Leu Asn Lys Asp Tyr Val Leu Leu Ala
 195 200 205
 Tyr Ala Lys Gly Leu Ser Pro Thr Ile Ser Tyr Ser Ala Phe Leu Thr Thr
 210 215 220 240
 Pro Tyr Ala Ile Phe Pro Thr Ile Ser Tyr Ser Ala Phe Leu Thr Thr
 225 230 235 240
 Thr Val Ile Thr Gly Thr Phe Ala Ile Glu Asn Ile Phe Cys Ile Pro
 245 250 255
 Gly Leu Gly Lys Trp Phe Ile Cys Ser Ile Lys Gln Arg Asp Tyr Pro
 260 265 270
 Val Ala Leu Gly Leu Ser Val Phe Tyr Gly Thr Leu Phe Met Leu Ser
 275 280 285

09041132 042301

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Ile | Val | Lys | Glu | Arg | Met | Asp | Met | Glu | Met | Ala | Ile | Ile | Ile | Pro |
| 370 | | | | | | 375 | | | | | 380 | | | | |
| Lys | Gly | Met | Cys | Asp | Tyr | Leu | Leu | Ile | Val | Trp | Asp | Ile | Ile | His | Trp |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Ala | Lys | Ala | Asn | Gly | Ile | Pro | Val | Gly | Pro | Gly | Arg | Gly | Ser | Gly | Ala |
| | | | | 405 | | | | | | 410 | | | | | 415 |
| Gly | Ser | Val | Leu | Leu | Phe | Leu | Leu | Gly | Ile | Thr | Glu | Ile | Glu | Pro | Ile |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Arg | Phe | Asp | Leu | Phe | Phe | Glu | Arg | Phe | Ile | Asn | Pro | Glu | Arg | Leu | Ser |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Tyr | Pro | Asp | Ile | Asp | Ile | Asp | Ile | Cys | Met | Ala | Gly | Arg | Glu | Arg | Val |
| | | 450 | | | | 455 | | | | | 460 | | | | |
| Ile | Asn | Tyr | Ala | Ile | Glu | Arg | His | Gly | Lys | Asp | Asn | Val | Ala | Gln | Ile |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Ile | Thr | Phe | Gly | Thr | Met | Lys | Ala | Lys | Met | Ala | Val | Lys | Asp | Val | Gly |
| | | | | 485 | | | | | | 490 | | | | | 495 |
| Arg | Thr | Leu | Asp | Met | Ala | Leu | Ser | Lys | Val | Asn | His | Ile | Ala | Lys | His |
| | | | 500 | | | | | 505 | | | | | 510 | | |
| Ile | Pro | Asp | Leu | Asn | Thr | Thr | Leu | Ser | Lys | Ala | Leu | Glu | Thr | Asp | Pro |
| | | 515 | | | | | 520 | | | | | 525 | | | |
| Asp | Leu | His | Gln | Leu | Tyr | Ile | Asn | Asp | Ala | Glu | Ser | Ala | Gln | Val | Ile |
| | | 530 | | | | 535 | | | | | 540 | | | | |
| Asp | Met | Ala | Leu | Cys | Leu | Glu | Gly | Ser | Ile | Arg | Asn | Thr | Gly | Val | His |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 |
| Ala | Ala | Gly | Val | Ile | Ile | Cys | Gly | Asp | Gln | Leu | Thr | Asn | His | Ile | Pro |
| | | | | 565 | | | | | 570 | | | | | | 575 |
| Ile | Cys | Ile | Ser | Lys | Asp | Ser | Thr | Met | Ile | Thr | Thr | Gln | Tyr | Ser | Met |
| | | | 580 | | | | | 585 | | | | | 590 | | |
| Lys | Pro | Val | Glu | Ser | Val | Gly | Met | Leu | Lys | Val | Asp | Leu | Leu | Gly | Leu |
| | | 595 | | | | | 600 | | | | | 605 | | | |
| Lys | Thr | Leu | Thr | Ser | Ile | Asn | Ile | Ala | Met | Ser | Ala | Ile | Glu | Lys | Lys |
| | | 610 | | | | 615 | | | | | 620 | | | | |
| Thr | Gly | Gln | Ser | Leu | Ala | Met | Ala | Thr | Leu | Pro | Leu | Asp | Asp | Ala | Thr |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 |
| Thr | Phe | Ser | Leu | Leu | His | Gln | Gly | Lys | Thr | Met | Gly | Ile | Phe | Gln | Met |
| | | | | 645 | | | | | 650 | | | | | 655 | |
| Glu | Ser | Lys | Gly | Met | Gln | Glu | Leu | Ala | Lys | Asn | Leu | Arg | Pro | Asp | Leu |
| | | | 660 | | | | | 665 | | | | | 670 | | |
| Phe | Glu | Glu | Ile | Ile | Ala | Met | Gly | Ala | Leu | Tyr | Arg | Pro | Gly | Pro | Met |
| | | 675 | | | | 680 | | | | | 685 | | | | |
| Asp | Met | Ile | Pro | Ser | Phe | Ile | Asn | Arg | Lys | His | Gly | Lys | Glu | Ile | Ile |
| | | 690 | | | | 695 | | | | | 700 | | | | |
| Glu | Tyr | Asp | His | Pro | Leu | Met | Glu | Ser | Ile | Leu | Lys | Glu | Thr | Tyr | Gly |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 |
| Ile | Met | Val | Tyr | Gln | Glu | Gln | Val | Met | Gln | Ile | Ala | Gly | Ala | Leu | Ala |
| | | | | 725 | | | | | 730 | | | | | 735 | |
| Ser | Tyr | Ser | Leu | Gly | Glu | Gly | Asp | Val | Leu | Arg | Arg | Ala | Met | Gly | Lys |
| | | | 740 | | | | | 745 | | | | | 750 | | |
| Lys | Asp | Phe | Gln | Gln | Met | Glu | Gln | Arg | Glu | Lys | Phe | Cys | Lys | Arg | |
| | | 755 | | | | | 760 | | | | 765 | | | | |
| Ala | Cys | Asn | Asn | Gly | Ile | Asp | Pro | Glu | Leu | Ala | Thr | Val | Ile | Phe | Asp |
| | | 770 | | | | 775 | | | | | 780 | | | | |
| Lys | Met | Glu | Lys | Phe | Ala | Ala | Tyr | Gly | Phe | Asn | Lys | Ser | His | Ala | Ala |
| 785 | | | | | 790 | | | | | 795 | | | | | 800 |
| Ala | Tyr | Gly | Leu | Ile | Thr | Tyr | Thr | Thr | Ala | Tyr | Leu | Lys | Ala | Asn | Tyr |
| | | | | 805 | | | | | 810 | | | | | 815 | |
| Pro | Lys | Glu | Trp | Leu | Ala | Ala | Leu | Leu | Thr | Cys | Asp | Ser | Asp | Asp | Ile |

820 825 830
 Glu Lys Ile Gly Lys Leu Ile Arg Glu Ala Gln Ser Met Gly Ile Pro
 835 840 845
 Ile Leu Pro Pro His Ile Asn Val Ser Ser Asn His Phe Val Ala Thr
 850 855 860
 Asp Glu Gly Ile Arg Phe Ala Met Gly Ala Ile Lys Gly Ile Gly Arg
 865 870 875 880
 Gly Leu Ile Glu Ser Ile Val Glu Glu Arg Asp His His Gly Pro Tyr
 885 890 895
 Glu Ser Ile Arg Asp Phe Ile Gln Arg Ser Asp Leu Lys Lys Val Ser
 900 905 910
 Lys Lys Ser Ile Glu Ser Leu Ile Asp Ala Gly Cys Phe Asp Cys Phe
 915 920 925
 Asp Ser Asn Arg Asp Leu Leu Leu Ala Ser Val Glu Pro Leu Tyr Glu
 930 935 940
 Ala Ile Ala Lys Asp Lys Lys Glu Ala Ala Ser Gly Val Met Thr Phe
 945 950 955 960
 Phe Thr Leu Gly Ala Met Asp Arg Lys Asn Glu Val Pro Ile Cys Leu
 965 970 975
 Pro Lys Asp Ile Pro Thr Arg Ser Lys Lys Glu Leu Leu Lys Lys Glu
 980 985 990
 Lys Glu Leu Leu Gly Ile Tyr Leu Thr Glu His Pro Met Asp Thr Val
 995 1000 1005
 Arg Asp His Leu Ser Arg Leu Ser Val Val Leu Ala Gly Glu Phe Glu
 1010 1015 1020
 Asn Leu Pro His Gly Ser Val Val Arg Thr Val Phe Ile Ile Asp Lys
 1025 1030 1035 1040
 Val Thr Thr Lys Ile Ser Ser Lys Ala Gln Lys Lys Phe Ala Val Leu
 1045 1050 1055
 Arg Val Ser Asp Gly Ile Asp Ser Tyr Glu Leu Pro Ile Trp Pro Asp
 1060 1065 1070
 Met Tyr Glu Glu Gln Gln Glu Leu Glu Glu Asp Arg Leu Ile Tyr
 1075 1080 1085
 Ala Ile Leu Val Leu Asp Lys Arg Ser Asp Ser Leu Arg Ile Ser Cys
 1090 1095 1100
 Arg Trp Met Lys Asp Leu Ser Ile Val Asn Glu Asn Ile Ile Tyr Glu
 1105 1110 1115 1120
 Cys Asp Gln Ala Phe Asp Arg Ile Lys Asn Gln Val Gln Lys Met Ser
 1125 1130 1135
 Phe Thr Met Ser Thr Ser Gly Lys Glu Thr Lys Ala Lys Gly Asn Lys
 1140 1145 1150
 Pro Asn Glu Asn Gly His Thr Gln Ala Leu Ala Pro Val Thr Leu Ser
 1155 1160 1165
 Leu Asp Leu Asn Glu Leu Arg His Ser His Leu Cys Ile Leu Lys Lys
 1170 1175 1180
 Ile Val Gln Lys His Pro Gly Ser Arg Thr Leu Val Leu Val Phe Thr
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 Gln Asp Asn Glu Arg Val Ala Ser Met Ser Pro Asp Asp Ala Tyr Phe
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<210> 523
 <211> 576
 <212> PRT

<213> Chlamydia pneumoniae

<400> 523

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Thr | Asp | Phe | Pro | Thr | His | Phe | Lys | Gly | Pro | Lys | Leu | Asn | Pro | Ile |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Lys | Val | Asn | Pro | Asn | Phe | Phe | Glu | Arg | Asn | Pro | Lys | Val | Ala | Arg | Val |
| | | 20 | | | | | | 25 | | | | | 30 | | |
| Leu | Gln | Ile | Thr | Ala | Val | Val | Leu | Gly | Ile | Ile | Ala | Leu | Leu | Ser | Gly |
| | 35 | | | | | | 40 | | | | | 45 | | | |
| Ile | Val | Leu | Ile | Ile | Gly | Thr | Pro | Leu | Gly | Ala | Pro | Ile | Ser | Met | Ile |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Leu | Gly | Gly | Cys | Leu | Leu | Ala | Ser | Gly | Gly | Ala | Leu | Phe | Val | Gly | Gly |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Thr | Ile | Ala | Thr | Ile | Leu | Gln | Ala | Arg | Asn | Ser | Tyr | Lys | Lys | Ala | Val |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Asn | Gln | Lys | Lys | Leu | Ser | Glu | Pro | Leu | Met | Glu | Arg | Pro | Glu | Leu | Lys |
| | | 100 | | | | | | 105 | | | | | 110 | | |
| Ala | Leu | Asp | Tyr | Ser | Leu | Asp | Leu | Lys | Glu | Val | Trp | Asp | Leu | His | His |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Ser | Val | Val | Lys | His | Leu | Lys | Lys | Leu | Asp | Leu | Asn | Leu | Ser | Lys | Thr |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Gln | Arg | Glu | Val | Leu | Asn | Gln | Ile | Lys | Ile | Asp | Asp | Glu | Gly | Pro | Ser |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Leu | Gly | Glu | Cys | Ala | Ala | Met | Ile | Ser | Glu | Asn | Tyr | Asp | Ala | Cys | Leu |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Lys | Met | Leu | Ala | Tyr | Arg | Glu | Glu | Leu | Leu | Lys | Glu | Gln | Thr | Gln | Tyr |
| | | 180 | | | | | 185 | | | | | | 190 | | |
| Gln | Glu | Thr | Arg | Phe | Asn | Gln | Asn | Leu | Thr | His | Arg | Asn | Lys | Val | Leu |
| | | 195 | | | | 200 | | | | | | 205 | | | |
| Leu | Ser | Ile | Leu | Ser | Arg | Ile | Thr | Asp | Asn | Ile | Ser | Lys | Ala | Gly | Gly |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Val | Phe | Ser | Leu | Lys | Phe | Ser | Thr | Leu | Ser | Ser | Arg | Met | Ser | Arg | Ile |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| His | Thr | Thr | Thr | Thr | Val | Ile | Leu | Ala | Leu | Ser | Ala | Val | Val | Ser | Val |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Met | Val | Val | Ala | Ala | Leu | Ile | Pro | Gly | Gly | Ile | Leu | Ala | Leu | Pro | Ile |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Leu | Leu | Ala | Val | Ala | Ile | Ser | Ala | Gly | Val | Ile | Val | Thr | Gly | Leu | Ser |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Tyr | Leu | Val | Arg | Gln | Ile | Leu | Ser | Asn | Thr | Lys | Arg | Asn | Arg | Gln | Asp |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Phe | Tyr | Lys | Asp | Phe | Val | Lys | Asn | Val | Asp | Ile | Glu | Leu | Leu | Asn | Gln |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Thr | Val | Thr | Leu | Gln | Arg | Phe | Leu | Phe | Glu | Met | Leu | Lys | Gly | Val | Leu |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Lys | Glu | Glu | Glu | Glu | Val | Ser | Leu | Glu | Gly | Gln | Asp | Trp | Tyr | Thr | Gln |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Tyr | Ile | Thr | Asn | Ala | Pro | Ile | Glu | Lys | Arg | Leu | Ile | Glu | Glu | Ile | Arg |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Val | Thr | Tyr | Lys | Glu | Ile | Asp | Ala | Gln | Thr | Lys | Lys | Met | Lys | Thr | Asp |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Leu | Glu | Phe | Leu | Glu | Asn | Glu | Val | Arg | Ser | Gly | Arg | Leu | Ser | Val | Ala |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Ser | Pro | Ser | Glu | Asp | Pro | Ser | Glu | Thr | Pro | Ile | Phe | Thr | Gln | Gly | Lys |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Glu | Phe | Ala | Lys | Leu | Arg | Arg | Gln | Thr | Ser | Gln | Asn | Ile | Ser | Thr | Ile |
| | | | 420 | | | | | 425 | | | | | 430 | | |

F06240"23F4860

210 215 220
 His Val Leu Ser Lys Val Leu Pro Glu Leu Pro Gly Glu Thr Pro Leu
 225 230 235 240
 Val Leu His Gly Gln Val Ser Tyr Gly Arg Asn His His Asn Met Thr
 245 250 255
 Thr Lys Leu Ala Asn Asn Thr Gln Gly Lys Ser Asp Trp Asp Ser His
 260 265 270
 Ser Phe Ala Val Glu Val Gly Gly Ser Leu Pro Val Asp Leu Asn Tyr
 275 280 285
 Arg Tyr Leu Thr Ser Tyr Ser Pro Tyr Val Lys Leu Gln Val Val Ser
 290 295 300
 Val Asn Gln Lys Gly Phe Gln Glu Val Ala Ala Asp Pro Arg Ile Phe
 305 310 315 320
 Asp Ala Ser His Leu Val Asn Val Ser Ile Pro Met Gly Leu Thr Phe
 325 330 335
 Lys His Glu Ser Ala Lys Pro Pro Ser Ala Leu Leu Leu Thr Leu Gly
 340 345 350
 Tyr Ala Val Asp Ala Tyr Arg Asp His Pro His Cys Leu Thr Ser Leu
 355 360 365
 Thr Asn Gly Thr Ser Trp Ser Thr Phe Ala Thr Asn Leu Ser Arg Gln
 370 375 380
 Ala Phe Phe Ala Glu Ala Ser Gly His Leu Lys Leu Leu His Gly Leu
 385 390 395 400
 Asp Cys Phe Ala Ser Gly Ser Cys Glu Leu Arg Ser Ser Ser Arg Ser
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 420 425 430
 Xaa Xaa Xaa Phe Xaa Xaa Xaa
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 <213> C. Trachomatis D serovar

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 tacgtggatg ttttcgctga aatctatcag gtccctgttt ctcgaggatc catgttttcg 180
 gcagcgcacg cgcctcaaat tcacacctca atcatcgatt ttaaattagg ctctccagga 240
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 ataggcatca cccacacgac taacattcgg ttttgggagt ttaataaaga gttccgtcga 540
 aaactatatg aaaataaagc tcaaaactgtc gagatggagt gtgccacctt atttgctgca 600
 ggataccgaa ggaatcttcc tttaggagca cttttgctga tatcggatct acctttgcga 660
 aaagatggaa ttaaaactaa ggaaagcagt tcggcagtc taaactctca caccaaagag 720
 catatactaa caggcgttga ggtgtttgcc tctctacaag agaaatcagg cccaggaatc 780
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<210> 526
 <211> 1182
 <212> DNA
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<400> 526

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| gttgaccatg | gtaagactac | gttgacagct | gctattacgc | gtgcgttgtc | tggagatggg | 120 |
| ttggctgatt | ttcgtgatta | tagctctatt | gacaacactc | ctgaagaaaa | agctcgcggt | 180 |
| attacaatta | acgcttccca | cgttgagtac | gaaacagcta | atcgtcacta | cgctcacgtg | 240 |
| gactgccctg | gtcacgctga | ctatgttaaa | aacatgatca | ccgggtgcagc | tcaaattggac | 300 |
| ggggctattc | tagtagtttc | tgcaacagac | ggagctatgc | ctcaaactaa | agagcatatt | 360 |
| cttttgcaa | gacaagttgg | ggttccttac | atcgttgttt | ttctcaataa | aattgacatg | 420 |
| atttccgaag | aagacgctga | attggtcgac | ttagttgaga | tggagttggg | tgagcttctt | 480 |
| gaagagaaag | gatacaaaag | gtgtccaatc | atcagagggt | ctgctctgaa | agctttggaa | 540 |
| ggggatgctg | catacataga | gaaagttcga | gagctaattg | aagccgtcga | tgataacatc | 600 |
| cctactccag | aaagagaaat | tgacaagcct | ttcttaatgc | ctattgagga | cgtattctct | 660 |
| atctccggac | gaggaactgt | agtaactgga | cgtattgagc | gtggaattgt | taaagtttcc | 720 |
| gataaagttc | agttggtcgg | tcttagagat | actaaagaaa | cgattgttac | tgggggttgaa | 780 |
| atgttcagaa | aagaactccc | agaaggctcg | gcaggagaga | acgttggatt | gctcctcaga | 840 |
| ggtattggta | agaacgatgt | ggaaagagga | atggttgttt | gcttgccaaa | cagtgttaaa | 900 |
| cctcatacac | agttcaagtg | tgctgtttac | gttttgcaaa | aagaagaagg | tggacgacat | 960 |
| aagcctttct | tcacaggata | tagacctcaa | ttcttcttcc | gtacaacaga | cgtcacaggt | 1020 |
| gtggtaaactc | tgcttgaggg | aattgagatg | gtcatgcctg | gggataacgt | tgagtttgaa | 1080 |
| gtgcaattga | ttagccctgt | ggctttagaa | gaaggatga | gatttgcgat | tcgtgaaggt | 1140 |
| ggctgtacaa | tcgggtgctgg | aactatttct | aagatcattg | ca | | 1182 |

<210> 527

<211> 1650

<212> DNA

<213> C. Trachomatis D serovar

<400> 527

| | | | | | | |
|-------------|-------------|-------------|-------------|------------|------------|------|
| gtggaatctt | cccgtattct | tattacttct | gcgttgcctt | acgcaaattg | tcctttgcat | 60 |
| tttgacata | ttaccggtgc | ttatttgcct | gcagatgttt | atgcgcgttt | tcagagacta | 120 |
| caaggcaaaag | aggtcttgta | tatttgtggg | tctgatgaat | acggaatcgc | aattaccctt | 180 |
| aatgcagagt | tggcaggcat | ggggtatcaa | gaatatgtcg | acatgtatca | taagcttcat | 240 |
| aaagataacct | tcaagaaaat | gggaatttct | gtagatttct | tttccagaac | tacgaacact | 300 |
| tatcatcctg | ctattgtgca | agatttctat | cgaaacttgc | aggaacgcgg | actggtagag | 360 |
| aatcagggtga | ccgaacagct | gtattctgag | gaagaaggga | agtttctagc | ggaccgttat | 420 |
| gttgtaggta | cttgtcccaa | gtgtgggttc | gatcgagctc | gaggagatga | gtgtcagcag | 480 |
| tgcggtgccc | attacgaagc | tagagatctg | aaagagcctc | gttctaaatt | aacgggggca | 540 |
| gctttatctt | tacgtgatac | ggaacatgct | tacttgcatt | tggagcgcac | gaaagaagat | 600 |
| ttgcttgctt | tcgtgcaagg | tatttatcta | cgctcctcata | tgcgtaattt | cgttacggat | 660 |
| tacatcgagc | atttacgtcc | tcgagcagtg | actcgagatt | tgtcttgggg | aatacccgtt | 720 |
| cctgatttgg | aaaataaggt | attctatgta | tggttcgatg | ctccaattgg | ttacataagt | 780 |
| ggaactatgg | attgggcagc | atcgattgga | gacctgaag | cttggaagaa | gttttgggtg | 840 |
| gacgatactg | tgacctacgc | acagtttata | ggtaaagata | atacttcttt | ccatgcggct | 900 |
| attttccctg | ctatggaaat | aggacaatct | cttccctata | agaaagtgga | tgctcttgta | 960 |
| acatcagaat | ttttattgtt | agaaggtttc | cagttcagta | aatcggatgg | gaattttata | 1020 |
| gacatggatg | cgtttttaga | aacgtattcc | ttggataaac | tgcgttatgt | gttggcagcg | 1080 |
| attgctccag | agacttcgga | tagcgaattc | tctttccaag | agttcaagac | gcgatgcaat | 1140 |
| tctgagcttg | tagggaagta | tggaaatttt | gtgaatcgag | ttctagcttt | tgctgttaag | 1200 |
| aatggatgca | cagagctttc | ttctcctcaa | ttagagcaaa | aggatttggg | ttttatctca | 1260 |
| aaatctcaaa | aacttgctaa | ggatgcagcc | gaacattacg | cacaataacg | tttgcgtaag | 1320 |
| gcgtgttcca | cgattatgga | attagctgct | ttagggaatg | gctatttcaa | tgatgaagct | 1380 |
| ccatggaaat | tggctaaaga | gggtaactgg | aatcgggtac | gcgctattct | attctgtgct | 1440 |
| tgttactgcc | agaagttgct | agctctcatt | tcctatccta | ttatgcctga | aacagcattg | 1500 |
| aagatttttg | aaatgatagc | tcacatttcc | ttagatctag | gttcccaaga | tccagataga | 1560 |
| ttacaatctc | tttgacacaga | ttcctttttt | gattactcgg | aagagaaatt | ttctctgaaa | 1620 |
| gagcctgaat | tattgttcac | aatggttagag | | | | 1650 |

<210> 528
 <211> 300
 <212> DNA
 <213> C. Trachomatis D serovar

| | | | | | | | |
|-------------|------------|------------|------------|------------|------------|--|-----|
| <400> 528 | | | | | | | |
| atggctagaa | aagatcggtt | aactaatgaa | agactgaata | agctatttga | tagccccctt | | 60 |
| agtttggtta | attacgtaat | taagcaagct | aagaacaaaa | ttgctagagg | agatgttcgt | | 120 |
| tcttctaattg | tcgcgattga | ggcgtgaac | ttcctggatc | tttatggcat | tcagtcggaa | | 180 |
| tacgctgaaa | gagatgatcg | agagagacat | ttgtctgcta | caggagagag | acgaagagaa | | 240 |
| caagggtttcg | gaacatccag | aagaaaagat | ccttctctgt | acaactggag | cgacgtgaaa | | 300 |

<210> 529
 <211> 615
 <212> DNA
 <213> C. Trachomatis D serovar

| | | | | | | | |
|-------------|------------|-------------|-------------|------------|-------------|--|-----|
| <400> 529 | | | | | | | |
| atgtcagtaa | aggttatttc | ccccctttct | caagaogggg | ttcaatgctt | tcccaagctt | | 60 |
| tttatcatta | gcgctcctgc | tggagcaggg | aagacaacac | tcacccatat | gctacaaaga | | 120 |
| gagtttcttg | atgcatttga | gaagacgggtg | tcgtcaacga | cacgttcggc | tcgtccaggc | | 180 |
| gaagtgcattg | gcgtggatta | tttgtttgta | tctgaagatg | actttaagca | atcttttagat | | 240 |
| agggaaagatt | ttttggaatg | ggtcttttta | tttgggactt | attacggaac | gagtaaggcg | | 300 |
| gagattttcta | gagttctgca | aaagggttaag | cactgtatatg | ccgtgattga | tgtacaagga | | 360 |
| gctttggctc | tgaagaagca | aatgcgggca | gtcactatttt | ttattcaagc | tccctctcaa | | 420 |
| gaagaacttg | agcgcggttt | gaatgctcgg | gattcagaga | aagatttcca | gaagaaagaa | | 480 |
| agatttagagc | atagcgtgtg | cgaaattgct | gocgctagcg | aatttgatta | tgttgtgggt | | 540 |
| aatgatgatt | tgattacagc | atatcaagtt | ttaagaagta | tttttatagc | tgaagaacat | | 600 |
| aggatgagtc | atggc | | | | | | 615 |

<210> 530
 <211> 1806
 <212> DNA
 <213> C. Trachomatis D serovar

| | | | | | | | |
|------------|-------------|-------------|-------------|-------------|-------------|--|------|
| <400> 530 | | | | | | | |
| ttgaaaccgt | ataaaattga | gaacattcgt | aatttttcta | tcattgctca | tatcgaccac | | 60 |
| gggaaatcta | cgatcgaga | tcgtttgtta | gaaagtacta | gtactatcga | acaaagagag | | 120 |
| atgcgcgaac | aactttttaga | ttctatggat | ctagaaagag | aacgcgggat | taccatcaaa | | 180 |
| gcgcacccgg | tcactatgac | ctatgaatac | gaaggggaga | cttacgaact | caatctaata | | 240 |
| gatactcctg | gacacgtaga | tttctcttat | gaagtatccc | gatcactagc | agcttgtgaa | | 300 |
| ggagcgtcgc | ttatagtaga | tgctgcccaa | gggtgttcaag | ctcaaagctt | agctaagtga | | 360 |
| tatctggctc | tagaacgaga | tttagaaaac | attcctgttt | taaataaaat | agacttacct | | 420 |
| gctgctcaac | cagaagctat | aaaaaaacaa | atcgaagagt | tcacggtgatt | agataacttca | | 480 |
| aacaccattg | cttgctcagc | gaaaacagggt | cagggtatcc | ctgaaatttt | agagtctatt | | 540 |
| atacgactcg | ttccccacc | aaaacctcca | caggaaacag | aacttaaagc | tttgatcttt | | 600 |
| gattctcact | acgatcctta | tgtaggaatc | atggtttatg | tacgcgtgat | cagtggagaa | | 660 |
| atcaaaaagg | gagatcgcat | taccttcatg | gcaaccaaag | gtcctctctt | tgaggtctta | | 720 |
| ggaataggag | ctttcttacc | ggaagctact | ctcatggaag | gatccttacg | agccggacaa | | 780 |
| gtgggatact | tcattgccaa | cctaaaaaaa | gtaaaggatg | taaaaattgg | cgatacagtc | | 840 |
| actactgtta | aacatcctgc | taaagagcct | ttagaaggct | ttaaagaaat | caaacctgta | | 900 |
| gtgtttgctg | gtatctatcc | tatagattct | tctgactttg | ataccctgaa | agatgctcta | | 960 |
| ggccggttgc | agctaaacga | ctcagctctt | acgattgaac | aagagaacag | tcattctctc | | 1020 |
| ggatttgggt | tccgctgtgg | attttttagga | ctgctgcaat | tagaaatcat | ctttgagaga | | 1080 |
| atctctagag | aatttgatct | cgatattatt | gctacagctc | ctagcggtat | ctacaaagtc | | 1140 |
| gtcttaaaaa | atggtaaaaac | ccttttttatt | gataacccaa | cagcatatcc | tgaccagct | | 1200 |
| cttattgaac | acatggagga | gccttgggtc | catgttaata | tcattacgcc | tcaagagtat | | 1260 |

| | | | | | | |
|------------|-------------|------------|------------|------------|------------|------|
| ctcagcaata | ttatgagcct | ttgtatggat | aagcgtggga | tctgtctaaa | aacagatatg | 1320 |
| cttgaccaac | acagactggt | gctttcatat | gagctgcctc | tcaatgagat | tgtttctgat | 1380 |
| ttcaatgata | aactcaaata | tgtgacgaaa | ggatacggct | cctttgatta | ccggttagga | 1440 |
| gattataaaa | aggggtgctat | cattaagctg | gaaattctaa | ttaatgatga | ggctgttgat | 1500 |
| gccttttcct | gccttgtaca | cagagacaaa | gcagaatcaa | aaggcagaag | catctgcgag | 1560 |
| aaactcgtag | atgttatccc | tcctcagctc | tttaaaatcc | ctattcaggc | ggccatcaat | 1620 |
| aaaaagatta | ttgccagaga | gacgattcga | gcttttagcg | aaaatgtaac | tgctaagtgc | 1680 |
| tatggtggag | atatcacaag | aaaacgcaag | ttgtgggaca | aacagaaaaa | agggaagaaa | 1740 |
| cgaatgaaag | aattcggaaa | agtatccatt | ccgaacacgg | cgtttggtga | agtccttaaa | 1800 |
| atggag | | | | | | 1806 |

<210> 531

<211> 972

<212> DNA

<213> C. Trachomatis D serovar

<400> 531

| | | | | | | |
|------------|------------|------------|------------|------------|------------|-----|
| gtggaactac | ttcctcatga | aaaacagggt | gtcgaatacg | aaaaaacgat | cgccgagttt | 60 |
| aaagaaaaaa | ataaagaaaa | cagcctgctt | tcttcttcag | agattcaaaa | attggataag | 120 |
| cgtttagata | gattaaaaga | aaaaatttat | tccgatctca | ccccttggga | aagagtacaa | 180 |
| atttgtcgac | atccttcgag | acctagaaca | gtgaattata | tcgaaggaa | gtgcgaagag | 240 |
| tttgtagaac | tttgtggaga | tcgaacgttc | cgagatgatc | ctgcagttgt | cgagggttc | 300 |
| gcaaagattc | aagggcagcg | tttcatgctt | atagggcaag | aaaagggttg | cgacacaaaa | 360 |
| tctcgcatgc | atcgtaactt | cgggatgctt | tgtcccgaag | gctttagaaa | ggctctacgc | 420 |
| ttagctaaaa | tggcagagaa | attcggtttg | ccaattatct | ttctcgttga | taccctgga | 480 |
| gctttccctg | gattaacagc | cgaagaaaga | ggccaagggt | gggctattgc | gacaaactta | 540 |
| tttgagttag | ctagattagc | taccccaatc | attgtaattg | tgattggtga | aggatgttca | 600 |
| ggaggcgctc | taggaatggc | tataggagat | gttgtagcga | tgctagaaca | ctcgtattat | 660 |
| tctgtaattt | ctcctgaagg | gtgtgcttct | attttatgga | aagatcctaa | aaagaacagc | 720 |
| gatgctgctg | ccatgtttaa | aatgcatgga | gaggatctta | agggatttgc | tattgtggac | 780 |
| gcagtgatca | aagaacccat | aggtggggct | catcacaatc | ctgcggccac | atatcgtagt | 840 |
| gttcaagaat | atgtccttca | agaatggctt | aaattgaaag | atttaccggt | agaagagttg | 900 |
| ctagaaaaac | gatatcagaa | attccgaacg | ataggtctat | atgaaacttc | ttctgaaagc | 960 |
| gattctgagg | ca | | | | | 972 |

<210> 532

<211> 1938

<212> DNA

<213> C. Trachomatis D serovar

<400> 532

| | | | | | | |
|------------|------------|-------------|------------|------------|------------|-----|
| atgaaacttc | ttctgaaagc | gattctgagg | cataagaagc | atttagtttt | attcggtttt | 60 |
| tctcttttat | ccatattagg | gctaacaata | acgtctcaag | cagaaatttt | ttctctaggt | 120 |
| cttattgcta | agacagggtc | tgatacgttt | cttctttttg | ggaagcagga | gggagcttcc | 180 |
| ttagtcaaaa | ggaaagagct | gtccaaagat | caacttcttg | aacagtggga | taatattgtt | 240 |
| ggtagaggag | acacgctatc | tttgccctca | gcgaatgctt | atattgcgaa | acattcagga | 300 |
| ggctctcagt | caataacaaa | aaggcttttc | gcctatctct | ctggttggtt | tgacttttct | 360 |
| cgtttgcaat | gcctcgcgct | ttttctagta | gttggtgcta | ttttgaaatc | aacaacgcta | 420 |
| ttttttcaga | ggtttttagc | acaatttaatt | gctattcgtg | tgagctgctc | tttacgtaaa | 480 |
| gattacttct | tagctttaca | aacgctcccg | atgacattct | ttcatgcaca | cgatatgggg | 540 |
| aatctaagta | gtcgtgtgat | agcagattca | tctatgattg | cattagctat | taatgccctt | 600 |
| atggtgaatt | acattcaggc | tcctatcact | atgactttag | ccttagtagt | gtgcttgtct | 660 |
| atctcttgga | aattttgtgc | ttgtgtttgt | ttagcgttcc | ctatttttat | tttgccaatt | 720 |
| gttatcattg | caaagaaagt | taaagcattg | gctaaacgaa | ttcaaaagag | tcaagatcat | 780 |
| tctgccgctg | cgttattgga | ttttctttta | ggtattctta | cagtaaaagt | atttagaact | 840 |
| gagcagtttt | cttttagtaa | gtattgtcag | aaaaatgatg | agattgctcg | attggaagag | 900 |
| cgcagtgtcg | cgtatagttt | aattccaaga | cctcttctgc | acactattgc | ctcgttggtc | 960 |

| | | | | | | |
|-------------|------------|-------------|-------------|-------------|------------|------|
| tttgcctttg | tcattatgat | cggtttgtat | cattttcata | tcccacctga | ggagcttgtg | 1020 |
| gtcttttgtg | ggcttttcta | totcatttat | gatccgatta | aaaagtttgc | tgatgaaaat | 1080 |
| gcgaatatca | tgtggggatg | cgctgctgca | gaacgggtttt | atgaagtatt | ggatctagca | 1140 |
| aagcagcagt | ccaatgtttc | tgaaaagtta | aatgaattcc | agggattaca | acatagtatt | 1200 |
| cagttttgca | atgtatcctt | tggatatgta | gaggatagtc | ccgtattatc | ggatttcaac | 1260 |
| ttagtattaa | aaaaagggga | ggctatcggt | attgttggtc | caacaggatc | tgggaaatct | 1320 |
| accatagcaa | agttattgcc | aaggctttat | gaagtctctc | atggcgaaact | gttaattgat | 1380 |
| tcacttccga | tacgaagcta | ctgcaaaaat | tctttaagga | aacatattgg | ttgtgtgctg | 1440 |
| cagcatccat | ttttattcta | tgatacgggtg | tggaaataacc | tgacttgtgg | cagaaccttt | 1500 |
| tcagaagaag | aagtatttca | tgctttaaag | caagctcatg | cctacgaatt | tgtttctaaa | 1560 |
| atgcctcaag | gcgtgcacag | cttattagag | gaatccagta | aaaatttatc | tggaggtcag | 1620 |
| cagcaacgtt | tgacaatagc | tagagcattg | ctgcataaca | cctccattct | gttgctagat | 1680 |
| gaggcaacat | cagcattgga | tgccattagc | gaaaattatg | ttaaagagat | agtcgggcag | 1740 |
| ttaaaaggcc | gttgtacaca | aattatcatt | gcccacaagc | tctccactct | cgaatacgta | 1800 |
| gatcggtattg | tttacttggg | acaagggaag | aaaatagcag | aaggaaccaa | agaagagtta | 1860 |
| ttagactcct | gcccagcttt | tcaaagaatg | tgggtcttat | cgggtgctaa | ggactgggaa | 1920 |
| ctcaatgctg | tcgtaaaa | | | | | 1938 |

<210> 533
 <211> 1242
 <212> DNA
 <213> C. Trachomatis D serovar

| | | | | | | |
|-------------|------------|-------------|-------------|-------------|-------------|------|
| <400> 533 | | | | | | |
| atgttttctt | cagcaattgt | tattctaact | gcaatttttg | tcttgtgctc | ggggtttgtt | 60 |
| tctttatcgc | atatagcttt | attctcgctc | ccttcttccc | ttattgctca | ttacagtcac | 120 |
| tcaaaaaata | ggcagctccg | acaaattgcc | aatcttatgg | cctaccccaa | tcatttgcctc | 180 |
| atgacctag | tcttcttcga | catagggatt | aattattggag | tgcaaaactg | catagcaacc | 240 |
| ttagtaggag | attcggcatc | tctattgctt | accgtaggag | ttcccctcgc | tttgacacta | 300 |
| gttttgggag | aaattgtccc | taaggttatc | gcaatccctt | acaatgcacg | aattgcaaaag | 360 |
| attgtaaccc | caatcatctt | tgccctcaact | aaaagcttcc | gccctatatt | tgattgggct | 420 |
| atctcgggta | tcaattttat | cgttcagaaa | atgttggccc | gtcaagaaaag | tgattttatt | 480 |
| caacoccaaag | aattaaaaga | agtcctccga | agctgtaaaag | atttcggagt | tgtaaatcat | 540 |
| gaggaaagtc | gtcttctatt | tggctatcta | tccatggaag | aaggtagcat | taaagaacgc | 600 |
| atgacgcccc | aacaagaaat | cattttttat | gatgtcctta | ctccgattga | aaatttatat | 660 |
| aaactcttct | ctggacctaa | acaaagctat | tccaaagttc | tagtttgtaa | aggtgggtcta | 720 |
| caaaatctct | taggagtttg | ttctgcaaaa | ttgcttcttc | tctacaaaaga | aaaattacaa | 780 |
| tctgcogaag | aactcttgcc | tctccttcgt | aaacctcact | acattcctga | aacagtatca | 840 |
| gctaagacag | ctttgtatca | tctagcagga | gaagactgtg | gttttaggtat | tatcattgat | 900 |
| gaatatgggt | ctatagaagg | attgatcacc | caaaatgatc | tattttaaata | agtctctgat | 960 |
| ggggtagctc | ataatcgccc | atctttttaa | caattcgctc | actcagacaa | gaatgttgtt | 1020 |
| attgctgcag | gcacctatga | gctttctgat | ttctatgacc | tgtttggagt | tgatcttcct | 1080 |
| actacagcta | attgcgttac | cataggcgga | tggctgacag | aacaattagg | agaaatccct | 1140 |
| gaaacaggaa | caaaattcgc | ttggggacaa | tttgatttcc | aaataactaga | cgcggctcct | 1200 |
| aattgtgtga | aacgggtgta | tataaggaaa | acccatggaa | ac | | 1242 |

<210> 534
 <211> 1212
 <212> DNA
 <213> C. Trachomatis D serovar

| | | | | | | |
|------------|------------|------------|------------|-------------|------------|-----|
| <400> 534 | | | | | | |
| atggaaacta | actctccctt | tttctgggta | ggagtgaacc | tcctttgtat | ttttgtccaa | 60 |
| gggttctttt | ccatgatgga | aatggcttgc | atatcattca | atcgcggtgcg | gttgcaatat | 120 |
| taccttacga | aaagcaataa | aaaagcctct | tacattaact | tccttggttag | aagaccttat | 180 |
| cgcttatttg | gaaccgtaat | gttgggagta | aatattgctt | tgcaaatagg | gtctgagtca | 240 |
| tcacgaactt | gttataaaat | cctagggatt | tctcctgaat | atgctcctgc | aacgcaaatt | 300 |

| | | | | | | |
|-------------|-------------|------------|-------------|------------|-------------|------|
| atttttagtcg | tcattttttgc | tgaattaatt | ccttttagcta | tctctcgtaa | aattccagaa | 360 |
| aaaatcgctt | taaaaggagc | ccctatcctc | tatttcgctc | actatctttt | ctatccgctc | 420 |
| atccaatgtg | tcggtggcat | taccaatatg | atctacttta | ttctgaatat | taaggaagag | 480 |
| acgctccact | caacgcttag | ccgagatgaa | ttgcaaaaga | cattagaaac | tcatcatgaa | 540 |
| gagcatgatt | tcaatgtgat | agctacaaat | attttctctt | taagcgcaac | ttctgtagag | 600 |
| caagtatgtc | aatattttga | ccaaatcccc | atactttcag | ctaccgcttc | cgtacgagat | 660 |
| gtttgccagc | tcgttcgctg | ccatcgttta | gattttgtcc | ctgtttacca | taaagttaaa | 720 |
| aagaatgtag | tgggaatagc | ttttccaaaa | aacctcatta | atcgaaatcc | cagtgaacct | 780 |
| gttgtccctt | acctaagctc | tccctgggtc | ataacagcta | aatctaagct | cattcatgcg | 840 |
| atccaagaat | tccgcaagaa | tagttctaac | gtcgccattg | ttttaaataa | taatggcgag | 900 |
| cctatgggag | tttttaggctt | acatacggtg | tttaaaacgt | tattcaacac | aagaaatatc | 960 |
| gcccaattaa | aacccaaacc | aacttcttta | attgaacgaa | ctttctctgg | gaacacacct | 1020 |
| ttgtctgaaa | tagaaaatga | gctcgatatt | atttttatgg | ataatgattg | tacaacaatt | 1080 |
| gagcaactca | tgttaaaact | tctggatact | cctccagaag | taggcgcctc | tatcattatc | 1140 |
| aacgacctac | tgtttagaggt | aaaagagatt | tccttgtagc | gcatcaaaac | tgttgtctatc | 1200 |
| aaagatactc | tg | | | | | 1212 |

<210> 535

<211> 1617

<212> DNA

<213> C. Trachomatis D serovar

<400> 535

| | | | | | | |
|-------------|-------------|-------------|------------|-------------|-------------|------|
| atgtgttggtg | tggatggatc | taattccatc | caacaacgaa | tgcgtttttg | tgagtatcgt | 60 |
| accgcagcgc | aagaggctaa | gacctcatta | tcttcogatt | gttccttact | agaagctcgc | 120 |
| ttggcttttac | gagccttagc | caaacatcat | gaatattctg | cttgagagaga | ggccttcctc | 180 |
| cgttctcaag | aacgctttcc | ttcattggaa | gcagatcgtg | atattcatga | ggatcttgca | 240 |
| gcttctcttc | tacaaaaaaa | tattagacat | tcttcactta | ccgttcgagt | aattactatt | 300 |
| ttagctgtag | ggatggcgag | agactatcgg | ttagtgctta | ttgttttgca | ggctttgtct | 360 |
| gatgatagcg | ataccgtacg | tgagattgct | gtacaagtag | ctgttatgta | tggttctagt | 420 |
| tgttacttgc | gcgcgctggg | cgatttagcg | aaaaatgatt | cttctattca | agtacgcatac | 480 |
| actgcttatac | gtgctgcagc | cgtgttgtag | atacaagatc | ttgtgcctca | tttacgagtt | 540 |
| gtagtccaaa | atacacaatt | agatggaacg | gaaagaagag | aagcttgtag | atctttatgt | 600 |
| gttcttactc | ggcctcatag | tgggtgtatta | actggcatag | atcaagcttt | aatgacctgt | 660 |
| gagatgttaa | aggaatatcc | tgaaaagtgt | acggaagaac | agattcgtac | attattggct | 720 |
| gcagatcatc | cagaagtgcg | ggtagctact | ttacagatca | ttctgagagg | aggtagagta | 780 |
| ttccggtcat | cttctataat | ggaatcggtt | caaaagttag | cttgtaattc | actttctgct | 840 |
| cgtgttcaga | tgcaagctgc | agccattctc | tatttagaag | gagatccttt | cggagaagat | 900 |
| aagcttacag | aagggtttatc | agctacttcc | agcatccttt | gtgaagctgc | ctcagaagcg | 960 |
| gtctgctcat | tagggattca | tggagtccat | ttagctggac | gtttttttatc | aaaagtacaa | 1020 |
| ggaatgcgtt | ctcgagtga | tcttgctttc | gcgcttttgg | taagtcgaga | gaaggtagaa | 1080 |
| gaagctggag | atgttggttg | ttcttttatt | catagaatag | agccctgtcg | agctattgaa | 1140 |
| cagtttttat | gtgaagatca | gaagattttt | gtagcttcat | ctcctctgca | ggtagaaatc | 1200 |
| atgaaaaggg | atttggcgaa | gaagatcatt | cgtttattag | ttgcagctca | gtacagcaaa | 1260 |
| gcaaaaatgg | ttgtcgctca | gtatttagca | gggcagcagg | tgggatggag | tttctgttct | 1320 |
| gaagtctttt | gggaagaagg | ggatagcgag | gattttgttg | aaccattaca | agaagagagt | 1380 |
| tttgcgtttg | ccttagagaa | agctctttct | tttttgcaac | gcgaaggagg | agaagctggg | 1440 |
| ttgcatgcag | tgatcagttt | atatccacat | agtcgctggc | aagacaagtt | gactatcttg | 1500 |
| gaagcaattg | cttattcaga | aaatagaatc | gctacatgtt | ttttaagaga | gcgttgctctg | 1560 |
| caggaagcgg | cctctttaca | atcggcagct | gcaggagctg | tattcgctt | attcaaa | 1617 |

<210> 536

<211> 312

<212> DNA

<213> C. Trachomatis D serovar

<400> 536

| | | | | | | |
|-------------|------------|------------|------------|------------|------------|-----|
| atgcaaaactt | cccggatcag | ctctttttt | cgagggcttg | ttcacctgta | cogttggg | 60 |
| atttctcctt | ttctcggggc | tccttgctgc | ttttcccta | catgctctga | gtacgtctt | 120 |
| gttgactaa | agaaacatcc | gctcagaaaa | agccttttt | tcatcgccaa | gcgcttactc | 180 |
| aaatgcggcc | cttggtgcat | aggaggtatc | gatctcgctc | ctagaacttc | tggtgaagaa | 240 |
| tatctcagtt | cccctacccc | tctagcagaa | tccccagacg | acaggactgt | gccacacacc | 300 |
| caagaaaactt | ct | | | | | 312 |

<210> 537

<211> 1008

<212> DNA

<213> C. Trachomatis D serovar

<400> 537

| | | | | | | |
|------------|------------|------------|-------------|-------------|-------------|------|
| atgcagcttt | tttttggtag | attttacgaa | gtggcggtga | tagtagcaag | tattttgagg | 60 |
| gagagggatg | taggagtttt | tatggggata | gaaggaagag | gatcaggagc | tatgcaaagt | 120 |
| aaaaaacga | ttaaatggct | gaagcaagct | ctcgcttcta | gttctattgt | gaatataccta | 180 |
| ttactgcttt | tgatttatcc | gacgtatttt | agaaaagata | tttataaatt | acgggttttt | 240 |
| ccagggaatc | tcatcgctaa | aagttcacga | ataggggaaga | ttcctgaaga | cattttggaa | 300 |
| agactagaaa | atgcttcgtt | tgccgattta | ttagccttgt | tgacgggaaga | gagaatgggt | 360 |
| ttcggccatc | cattaaaatc | ttgggctcta | ggggtgagca | tccaaaaata | ttttgtagat | 420 |
| atcgctccta | tgctgacgca | tcctttaact | tttattagac | tcaaaagtc | tgaacgtact | 480 |
| tggttacttc | cggatattaa | tgatcaggag | tttacacgga | tttgtcagta | tttgcttaca | 540 |
| gagaggttcc | cattctcttc | acgaggtttt | tttcgtatta | tggtgcgtga | ttgtgaagca | 600 |
| gggatgggtg | atgaagatgt | tctgtatcgg | ttttgtcatc | ttcctgagtt | tctctatgtg | 660 |
| cgttctctcc | tttttggtgc | ggaaatcgaa | gctgcttcgg | tcgcttctct | ggcaagaatg | 720 |
| attatccaag | gaggggagga | cttattcttt | tccctgtgtt | gtttagaaaa | tcgtcaaacg | 780 |
| gcgatttctg | atcatcagag | gcgctgtttt | ctgaaagctt | atgtggatag | acaggaacct | 840 |
| ttagcagctc | ttctcttggt | agtacatgac | gcggactggg | tggtgcatga | gttttctgat | 900 |
| agcgatttac | aatcctttat | tcaacttttg | cctagagagg | cacactatac | taagaagttt | 960 |
| cttgggtgtg | tggcacagtc | ctgtcgtctg | gggattctgc | tagagggg | | 1008 |

<210> 538

<211> 1278

<212> DNA

<213> C. Trachomatis D serovar

<400> 538

| | | | | | | |
|-------------|-------------|-------------|------------|------------|-------------|------|
| atgtatgttc | gctctatctt | tttttagtatt | atcgcccttc | taacggctcg | atgctccttt | 60 |
| tctcctccag | aatcgggctt | aatcatagcc | attcaagatg | atcctcgtct | tctttctcca | 120 |
| gaaaaaggag | aaaatgcttt | ccattttttt | ttgtccaagg | ctttattttg | tactctcttc | 180 |
| agagaagagc | tctctggatt | aacctgtgct | ctggtctcct | cctatcaagt | ttcggaagac | 240 |
| gggcgggttt | atcgtttttg | tattcgtaaa | gatgctaagt | ggagtgcagg | ctctctttta | 300 |
| cttgacagaag | atgtaatagc | tgcttgggaa | cacactaaac | aagctgggcg | atattcccta | 360 |
| ctttttgaaa | agctatcttt | tcgagcctct | tcttcttcag | aaatccttat | tgaactcaaa | 420 |
| gaacccgagc | ctcaactatt | ggcgatatta | gcctctccgt | tttttgctgt | gtatcgcca | 480 |
| gaaaatcctt | ttctttcttc | tggacctttt | atgccaaaaa | cctatgtgca | agggcaaacg | 540 |
| ctcgttctac | aaaaaaaacc | ttattactat | gacctgcgc | atgtggaatt | acattccata | 600 |
| gactttcgca | tcattcccaa | catttacaca | gctctacacc | tcttaagaag | aggtgacgtg | 660 |
| gttggtgtg | ggcagccttg | gcaccaagg | attccttttg | agcttcggac | tacctctgct | 720 |
| ctctacaccc | attactctgt | agatggcaca | ttctggctta | ttcttaatcc | caaagatcct | 780 |
| gtactttcct | ctctatctaa | tcgtcagcga | ttgattgctg | ccgtccaaaa | ggaaaaactg | 840 |
| gtgaagcaag | cttttaggaac | acaatatcga | gtagctgaaa | gctctccatc | tccagagggga | 900 |
| atcatagctc | atcaagaagc | ttctactcct | tttcctggga | aaattacttt | gatatatccc | 960 |
| aataatatta | cgcgctgtca | gcgtttggcc | gaggtattgc | aagaacaatg | ccgagacgca | 1020 |
| ggtatccagc | tgactcttga | aggactcgaa | taccatgtat | ttgttcaaaa | acgagccact | 1080 |
| caagatttct | ctgtctccac | agcaacttct | atagcttttc | atccccctgc | taaatctaag | 1140 |
| ttcgatcaaa | cggtctctaga | caatttcact | tgtctgcctt | tgtaccacat | agaatatgat | 1200 |

tatattttga gcagaccgct agatcaaatt gttcactatc cttcaggtag tgttgatttg 1260
acctatgcac actttcac 1278

<210> 539

<211> 1815

<212> DNA

<213> C. Trachomatis D serovar

<400> 539

| | | | | | | |
|-------------|-------------|------------|------------|------------|------------|------|
| atgcaaaata | ttcttcgaac | ttcttcttgc | agatatatgt | ttttgctggg | tattcgttcg | 60 |
| gtgtggaatc | gggtggctgt | tgtgaataac | tttagaggaa | gttcatggaa | aattgtagca | 120 |
| atccccagtt | gtatactgtt | tactttgata | ttccatttac | ctagatggct | gattgatttt | 180 |
| ggggatgtga | caaatttagc | gtgctccttg | tcgatcattt | tttgggtggt | ttctctacgc | 240 |
| tcttcagctt | cggtcgtat | tttcccttct | ctccttttgt | atctttgtct | attgcgactt | 300 |
| ggcctgaatt | tagcctccac | ccgatggatt | ttatcttctg | gatgggcttc | tcctttaatt | 360 |
| tttgcgtagg | ggaatttctt | ttcccttggg | agcatcccgg | ttgctcttac | ggtatgttta | 420 |
| ctctgttttt | tagtgaattt | tctcgtcata | actaaaggag | cagagcgtat | tgcggaagtg | 480 |
| cgagctcggt | tttcattaga | agcgtcccca | ggtaaacaaa | tgtctttaga | tgctgatatt | 540 |
| gctgctggaa | ggatcgggta | tagcagagcg | tctgttaaaa | aaagctctct | tttagaagag | 600 |
| agtgattact | tctccgccat | ggagggcgta | ttccgctttg | taaaaggcga | tgcgataatg | 660 |
| agttgggtgt | tgtaggaggt | gaatatccta | gctgctctgt | ttttaggacg | agctactcat | 720 |
| gttggcgatt | tgtggttaac | tgtattaggc | gatgctttag | tgagtcaaat | tccagcattg | 780 |
| cttacatcgt | gtgcagcagc | aacgcttata | gctaaagttg | gggaaaaaga | aagtctagcg | 840 |
| cagcatctgc | tagattatta | tgagcagagt | cgccagagtt | ttctttttat | cgctttgatc | 900 |
| ctatgtggga | tggcttgat | tccaggagct | cctaaagctc | tgatcctagg | tttttcagtt | 960 |
| ttattattct | taggggtataa | gaatccttct | tcaggagaga | ctcttctctt | ccagaaagaa | 1020 |
| cgggtagagt | ttgtattgcc | tgatgagggg | gtgggaaatc | ctgctaattt | gtacaaggac | 1080 |
| gcccgaatc | agatttatca | agagttaggc | gtagttttcc | cggaagctat | tggtgtacgt | 1140 |
| catgtaacag | gatcttctcc | acgtttaatc | ttttctgggc | aagaggtcgc | tttgagagag | 1200 |
| ctgtcttgcc | cagctatact | agaatcgatt | aggcagctag | ctccagaaac | gatcagtga | 1260 |
| cgcttcgtta | ctcgcttagt | tgatgagttt | cgagagcatg | cattcttatc | gatagaagag | 1320 |
| atccttccgt | taaaaatate | agagaattct | ttgattttct | tattgagagc | tcttgtaga | 1380 |
| gaacgagtgt | ctttgcattt | attccctaag | attctcgaag | ctatagatgt | atatggctct | 1440 |
| caaccaaaaga | attctcagga | attggtagag | tgtgtacgaa | aatatcttgg | gaagcaaatt | 1500 |
| ggttttatcct | tatggaatcg | ccaagatgtc | ttagaggtaa | ttacgataga | ctctctgggt | 1560 |
| gagcagtttg | tgagagattc | acaagaaaag | gttggtgttg | atttaaataa | aaaagtagtt | 1620 |
| gctcaggtga | agcatttatt | gcgggtaggg | gaggggaatt | ttcgagctat | cgtaacggga | 1680 |
| tccgaaacaa | gaaaagaact | gaaacgcata | gtggatcctt | atttcccaga | tttattgggt | 1740 |
| ttagcacata | gcgaacttcc | agaagagatc | cctataactt | tgtaggagc | ggtgtctgat | 1800 |
| gaggttttat | tatca | | | | | 1815 |

<210> 540

<211> 519

<212> DNA

<213> C. Trachomatis D serovar

<400> 540

| | | | | | | |
|------------|------------|------------|------------|------------|------------|-----|
| atgaaaaagt | tcttattact | tagcttaatg | tctttgtcat | ctctacctac | atttgcagct | 60 |
| aattctacag | gcacaattgg | aatcgtaaat | ttacgtcgct | gcctagaaga | gtctgtcttt | 120 |
| gggaaaaaag | aatctgctga | attcgaaaag | atgaaaaacc | aattctctaa | cagcatgggg | 180 |
| aagatggagg | aagaactgtc | ttctatctat | tccaagctcc | aagacgacga | ttacatggaa | 240 |
| ggtctatccg | agaccgcagc | tgccgaatta | agaaaaaat | tcgaagatct | atctgcagaa | 300 |
| tacaacacag | ctcaagggca | gtattaccaa | atattaaacc | aaagtaatct | caagcgcatg | 360 |
| caaaagatta | tggagaagt | gaaaaaagct | tctgaaactg | tgcgatttca | agaaggcttg | 420 |
| tcagtccttc | ttaacgaaga | tattgtctta | tctatcgata | gttcggcaga | taaaaccgat | 480 |
| gctgttatta | aagttcttga | tgattctttt | caaaaataat | | | 519 |

<210> 541
 <211> 1062
 <212> DNA
 <213> C. Trachomatis D serovar

<400> 541
 atgtctcaat ccacttattc tcttgaacaa ttagctgatt ttttgaaagt cgagtttcaa 60
 ggaaatggag ctactcttct ttccggagtt gaagagatcg aggaagcaaa aacggcacac 120
 atcacattct tagataatga aaagtatgct aaacatttaa aatcatcgga agctggcgct 180
 atcatcatat ctogaacaca gtttcaaaaa tatcgagact tgaataaaaa ctttcttctc 240
 acttctgagt ctccctccct agtttttcaa aagtgtttag aattattcat tactcctggt 300
 gactcaggat tcccagggtat tcatccgaca gccgttatcc atccaactgc gattattgaa 360
 gatcatgttt gtattgagcc ctatgctgta gtttgtcagc atgctcatgt tggatctgct 420
 tgccatattg ggtcaggtag cgctcattgga gcttattcaa ccggttgaga acactcttat 480
 atccatcctc gagtagttat tagagaacga gtctctattg ggaaacgagt aattattcaa 540
 ccaggagctg ttataggctc ttgtgggttc gggtagtcta ctagtgtctt tggacagcac 600
 aaacatttaa aacacctcgg gaaagtcatt attgaagacg acgtagagat cggcgcaaat 660
 acaactatcg acagaggccg gtttaaacac agtggtgtgc gtgaagggtc gaaaattgat 720
 aatcttgtgc aaattgcccc tcagggtggag gtcgggtcaac acagcatgat tgtagctcaa 780
 gctggaattg cagggttctac aaagattggc aatcatgtaa ttatcggtgg acaagccggc 840
 ataaccggac atatttgcac tgcagatcat gtcattatga tggctcagac tggcgctact 900
 aaatctatta cttctccagg gatctatggc ggagcgccctg ctcgctccata tcaagaaatt 960
 catcgccaag tagccaaagt acgcaacctt ccacgactcg aagaacgtat cgcagcactt 1020
 gagaaactag tccagaaatt agaagctctc tcagaacaac at 1062

<210> 542
 <211> 1263
 <212> DNA
 <213> C. Trachomatis D serovar

<400> 542
 atgactgcat caggaggagc tggagggcta ggcagcaccc aaacagtaga cgttgccgca 60
 gcacaagctg ctgcagctac tcaagatgca caagagggtta tcggctctca ggaagcttct 120
 gaggcaagta tgctcaaagg atgtgaggat ctcataaata ctgcagctgc aaccgcaatc 180
 aaaaaaaaaa gagagaagtt tgaatcatta gaagctcgtc gcaaaccaac agcggataaa 240
 gcagaaaaga aatccgagag cacagaggaa aaaggcgata ctctcttga agatcgtttc 300
 acagaagatc tttccgaagt ctccggagaa gattttcgag gattgaaaaa ttcgttcgat 360
 gatgattctt ctctgacga aattctcgat ggcgtcacaa gtaaattttc tgatccaca 420
 ataaaggatc tagctcttga ttatctaatt caaacagctc cctctgatgg gaaacttaag 480
 tccactctca ttcaggcaaa gcatcaactg atgagccaga atcctcaggc gattgttgga 540
 ggagcgaatg ttctgttagc ttcagaaacc tttgcttcca gagcaaatac atctccttca 600
 tcgcttcgct ccttatattt ccaagtaacc tcatccccct ctaattgcgc taatttacat 660
 caaatgcttg cttcttactt gccatcagag aaaaccgctg ttatggagtt tctagtaaatt 720
 ggcattgtag cagattttaa atcggagggc ccttccattc ctctgcaaa attgcaagta 780
 tatatgacgg aactaagcaa tctccaagcc ttacactctg taaatagctt ttttgataga 840
 aatattggga acttggaata tagctttaaag catgaaggac atgcccctat tccatcctta 900
 acgacaggaa atttaactaa aaccttctta caattagtag aagataaatt cccttctctt 960
 tccaaagctc aaaaggcatt aaatgaactg gtaggcccag atactggtcc tcaaactgaa 1020
 gttttaaact tattcttccg cgctcttaatt ggctgttcgc ctagaatatt ctctggagct 1080
 gaaaaaaaac agcagctggc atcgggtatc acaaatagc tagatgcgat aaatgcggat 1140
 aatgaggatt atcctaaacc aggtgacttc ccacgatctt ccttctctag tacgcctcct 1200
 catgctccag tacctcaatc tgagattcca acgtcaccta cctcaacaca gcctccatca 1260
 ccc 1263

<210> 543
 <211> 693
 <212> DNA

<213> C. Trachomatis D serovar

<400> 543

| | | | | | | |
|------------|-------------|-------------|-------------|--------------|------------|-----|
| atgatggagg | tgtttatgaa | tttttttagat | cagtttagatt | taattattca | aaataagcat | 60 |
| atgctagaac | acacatttta | tgtgaaatgg | togaaggggg | agcttactaa | agagcaatta | 120 |
| caggcgtatg | ccaaagacta | ttattttacat | atcaaagcct | ttcctaaata | tttatctgcg | 180 |
| attcatagtc | gttgcgatga | tttagaggcg | cgtaagttat | tgttagataa | cttgatggat | 240 |
| gaagagaacg | gttaccctaa | tcatattgat | ttgtggaagc | agtttgtggt | tgctctagga | 300 |
| gttactccag | aagagtttaga | ggctcatgag | cctagtgaag | cagcaaaaagc | gaaagtagct | 360 |
| actttcatgc | gggtgtgtac | aggagattct | ttagctgcag | gagtggtgctgc | tttgtattct | 420 |
| tatgagagtc | aaattccacg | tatcgctaga | gagaaaattc | gtggattgac | tgagtacttt | 480 |
| ggattttcca | atcctgaaga | ctatgcata | ttcacagaac | atgaagaagc | ggatgtgcgg | 540 |
| catgctagag | aagaaaaagc | gctcattgag | atgcttctca | aagatgacgc | tgataaagtg | 600 |
| ttagaggcat | cgcaagaagt | aacgcaatct | ttgtatggct | tttttagattc | ttttttggat | 660 |
| ccaggaactt | gttgtagttg | tcatcaatct | tat | | | 693 |

<210> 544

<211> 729

<212> DNA

<213> C. Trachomatis D serovar

<400> 544

| | | | | | | |
|------------|------------|------------|-------------|------------|------------|-----|
| atgaaaataa | ctccgatcaa | aacacgtaaa | gtattttgcac | atgattcgct | tcaagagatc | 60 |
| ttgcaagagg | ctttgcccgc | tctgcaagaa | cggagtgtgg | tagttgtctc | ttcaaagatt | 120 |
| gtgagtttat | gtgaaggcgc | tgtcgctgat | gcaagaatgt | gcaaagcaga | gctgataaaa | 180 |
| aaagaagcgg | atgcttattt | gttttgtgag | aaaagcggga | tatatctaac | gaaaaaagaa | 240 |
| ggatttttga | ttccttctgc | agggattgat | gaatcgaata | cggaccagcc | ttttgtttta | 300 |
| tatcctaaag | atattttggg | atcgtgtaat | cgcacgggag | aatggttaag | aaattatttt | 360 |
| cgagtgaag | agctaggcgt | aatcattaca | gatagccata | ctactccaat | gcggcgtgga | 420 |
| gtactgggta | togggctgtg | ttggtatgga | ttttctccat | tacacaacta | tataggatcg | 480 |
| ctagattggt | togggtcgcc | cttacagatg | acgcaaagta | atcttgtaga | tgccttagca | 540 |
| gttgccggtg | ttgtttgtat | gggagagggg | aatgagcaaa | caccgttagc | ggtgatagag | 600 |
| caggcaccta | atatggtcta | ccattcacat | cctacttctc | gagaagagta | ttgttctttg | 660 |
| cgcatagatg | aaacagagga | cttatacggg | ccttttttgc | aagcggttac | gtggagtcaa | 720 |
| gaaaagaaa | | | | | | 729 |

<210> 545

<211> 1149

<212> DNA

<213> C. Trachomatis D serovar

<400> 545

| | | | | | | |
|------------|-------------|-------------|-------------|-------------|-------------|-----|
| atgcttccac | atcagcagaa | cagcagttct | gaacgtgccc | gtcatcacga | atctcgctca | 60 |
| catcggcatt | cctcatcatc | aagacatcat | gttacgcgat | ctcaatcaag | cgcactccct | 120 |
| caattgcaag | agcgtcctgt | gcctcatcca | cttgcaagaa | gagaattgat | tatattccat | 180 |
| tccgtacatc | agcagcagaa | taataatcct | ctaagaatga | tttgcgatac | cattcgccaa | 240 |
| gctcaaagag | ggatatttat | gcgcatttac | accatatacat | ctgatgacat | tatccaatct | 300 |
| ctaattcaga | cttcgcacca | tgttcctgta | gaagtcaaat | accattgcgg | agaaaagctta | 360 |
| cctgtagcat | gtcaaaaactc | gagagtcgctc | ttgcgtctga | ctaacggaag | aaccttccaa | 420 |
| cataaaaaaa | ctatgttggc | tgatttccaa | acagtagtta | caggatcagc | caactacacg | 480 |
| gacttgtctc | tcaatcacga | tgccaacgtg | acggcatgta | tagaaaagttc | agaattacat | 540 |
| gacgcagtct | tttctgaaag | accccaactg | gttcattgtcg | gacctcagct | gctcaattac | 600 |
| attcctatcc | agcgtttgat | tcctaattgca | gcatcaaaaa | tgatttttgaa | tgcaattaac | 660 |
| caagcaacgg | acagtatttt | tgtcttgatg | tatatcttct | taagcccaga | attcttctta | 720 |
| gctcttgccc | aagctatgcg | aagaggagtt | cgagtaaaaag | taatcatcga | caaccattcc | 780 |
| aaacaagata | catgcaaaact | actgagcaaa | ttgggtatcc | aacttctctat | ttacgaaaga | 840 |
| aaaacggaag | gcgttctcca | tactaagatt | tgttgcacgc | acaataaaaac | tctaattcttt | 900 |

| | | | | | | |
|------------|------------|-------------|-------------|------------|------------|------|
| <400> | 547 | | | | | |
| atgtttacaa | ggatagttat | ggtcgatcta | caagaaaagc | aatgcacaat | tgtaaagcgc | 60 |
| aatggaatgt | ttgttccttt | cgatcggaac | cgtatttttc | aggctttaga | agcagctttt | 120 |
| cgagacactc | gcagaattga | tgatcatatg | cctttgcctg | aagatctgga | aagttccata | 180 |
| cgctcgataa | cgcatacagg | agttaaagaa | gttgtgcaaa | agattacaga | tggaacaagt | 240 |
| gttactgtag | agcgtatacc | agatatggtt | gaaagccaac | tatatgtgaa | tggtttgcaa | 300 |
| gatgttgctc | gcgattatat | tgtctatcgc | gatgaccgta | agacgcatac | gaaaaaatct | 360 |
| tggaagcc | tatccgttgt | tcgtcgttgt | gggactgttg | tacactttaa | tcctatgaaa | 420 |
| atttccgccc | ctttggaaaa | agctttccga | gctaccgata | agactgaggg | gatgactcca | 480 |
| agttctgtgc | gagaggaaat | caatgctttg | acgcaaaaca | ttgtcgcgga | aatagaagaa | 540 |
| tgttgtcctc | aacaggatag | acgcattgat | atcgagaaga | ttcaagatat | tgttgaacag | 600 |
| caactaatgg | ttgttgggca | ttatgctgtt | gcaaaagaact | atattcttta | tcgagaagct | 660 |
| cgcgctcgtg | ttcgtgataa | cagagaagag | gacgggagta | cagaaaagac | tatagcagaa | 720 |
| gaagctgttg | aggtgctcag | taagagcgg | tctacctata | caatgacgca | ttcgcagttg | 780 |
| ttggctcatt | tagcgcgcgc | ttgtagtcgt | tttccagaaa | cgacagatgc | ggcgcgtcct | 840 |
| accgatatgg | ctttcgcaaa | tttctattcc | ggtatcaaag | agtctgaagt | agtactggcc | 900 |
| tgtattatgg | cggctcgtgc | caatattgaa | aaggagcctg | attatgcctt | tgttgctgca | 960 |
| gagctcttac | ttgacgttgt | atataaggaa | gcgttaggga | aatcgaaata | tgctgaggat | 1020 |
| ttagaacaag | cacatcgcca | tcatttcaaa | cgctacatcg | cagaagggga | tacctatcgt | 1080 |
| ctgaatgctg | aactgaaaca | ttcttttgat | ttagaccgct | tagccgatgc | tatggatcta | 1140 |
| tctcgagatc | tacagttttc | ttcatgggt | attcaaaatc | tgatatgcgc | ttattttaat | 1200 |
| caccacgaag | gttgccgttt | agaaactccc | caaatttttt | ggatgcgcgt | tgctatgggg | 1260 |
| ttggcattga | atgagcaaga | caagacttct | tgggctatta | ctttttataa | tttgctttcg | 1320 |
| acattccgat | atacaccagc | tacgcccaacc | ttgttcaatt | caggtagcgc | gcattctcag | 1380 |
| ttaagctctt | gctatctttc | cactgtacaa | gataatttgg | tcaatatcta | taaggtcatt | 1440 |
| gctgataacg | ctatgctatc | taagtgggca | ggagggatag | gtaatgattg | gacggcgatt | 1500 |
| cgtgcaacag | ggcgcttaat | taaggaacc | aatggaagaa | gtcagggagt | aattcctttt | 1560 |
| attaaggtga | caaatgatac | agcaatcgca | gtgaatcaag | gtggtaaacg | caaggagact | 1620 |
| gtatgcgtct | atttagaagt | ttggcacctc | gactacgaag | atttccttga | attgagaaag | 1680 |

| | | | | | | |
|-------------|-------------|-------------|-------------|------------|-------------|------|
| aatacagggg | atgagcgtcg | acgggctcat | gatgtcaata | tagctagctg | gattccagat | 1740 |
| cttttcttca | aacgtttaca | gcaaaaagg | acatggactc | tattcagccc | agatgatgtt | 1800 |
| ccgggattac | acgatgctta | tggggaagaa | tttgagcgtt | tgtacgaaga | atatgagcgg | 1860 |
| aagggtgata | ccggagagat | tcggttattc | aagaaggtag | aagctgaaga | tctgtggaga | 1920 |
| aaaatgctca | gcatgctttt | tgaaacggga | cacccatgga | tgacttttaa | agatccatcc | 1980 |
| aacatccgtt | cggctcaaga | tcataaaggc | gtgggtgcgtt | gttccaatct | gtgtacggag | 2040 |
| atthttgttaa | actgctcgga | gacagaaact | gctgtttgta | atthtaggac | gattaaactta | 2100 |
| gttcaacata | tcgttagggga | tgggttagat | gaggaaaaac | tctctgagac | gatctctata | 2160 |
| gcagtcgta | tgttggtata | cgtgattgat | attaactttt | atccaacaaa | ggaagctaaa | 2220 |
| gaggcgaaact | ttgctcaccg | cgttattgga | ttaggggtga | tgggattcca | agatgccttg | 2280 |
| tataagctag | atataagcta | tgttcgcaa | gaagctgtag | aatttgctga | ctacagttca | 2340 |
| gagttgattt | cttactatgc | gattcaagct | tcttgtctgc | tcgctaaaga | acgaggcact | 2400 |
| tacagctctt | ataaaggatc | gaaatgggat | agaggtttgc | tccctattga | tacgattcag | 2460 |
| ttgttagcga | actatcgagg | agaagcaaat | ctccagatgg | atacgtcatc | aagaaaagat | 2520 |
| tgggaaccta | tccgtagttt | ggttaaagag | catggatgac | gacattgtca | gcttatggct | 2580 |
| atagctccga | cagcgacgat | ctccaacatt | ataggagtaa | ctcaatctat | tgagccaacg | 2640 |
| tacaaacatt | tgthttgtgaa | gtctaatttg | tccggagaat | tcacgattcc | aaatgtgtat | 2700 |
| tttaattgaga | agttgaagaa | attaggtatc | tgggatgctg | atatgttaga | tgacctgaaa | 2760 |
| tattttgatg | ggtctttatt | ggaaatcgag | cgtataccag | atcacttaaa | acataattttc | 2820 |
| ttgacagctt | ttgagattga | accagaatgg | attatcgaat | gcgctgtctg | aagacaaaaa | 2880 |
| tggattgata | tggggcaatc | cctcaacctt | tatcttgccc | agccagacgg | gaaaaaactg | 2940 |
| tcgaatatgt | atttaacggc | ttggaaaaaa | ggthttgaaaa | ctacgtatta | tctgagatct | 3000 |
| tcatcagcaa | cgaccgttga | aaaatctttt | gtagatatta | ataagagagg | aattcagcct | 3060 |
| cgttggtatg | agaataagtc | tgttcgggca | ggaattattg | ttgaaagagc | gaagaaagca | 3120 |
| cctgtctgtt | ctthtgaaga | aggggtgtgaa | gcattgtcag | | | 3159 |

<210> 548

<211> 1038

<212> DNA

<213> C. Trachomatis D serovar

<400> 548

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| gtgaactgca | accagggtcga | tgtcaaccaa | cttggttccta | tttaagtacaa | atgggcttg | 120 |
| gaacattatt | tgaatggctg | cgcaaataac | tggctcccta | cagagatccc | catggggaaa | 180 |
| gacatcgaat | tatggaagtc | ggatcgtctt | tctgaagatg | agcggcgagt | cattcttttg | 240 |
| aatttaggtt | ttttcagcac | cgcagagagc | ttggttggga | ataatattgt | tctagcaatt | 300 |
| tttaaactatg | taactaatcc | ggaagcgaga | caatatcttt | taagacaagc | ttttgaagaa | 360 |
| gcggttcaca | cgcacacatt | tttgtatatt | tgtgagtcac | tcggattaga | cgagaaagaa | 420 |
| atthttcaatg | cctataacga | gcgtgctgcg | attaaggcca | aagatgattt | ccagatggaa | 480 |
| atcactggca | aggtattaga | tcctaatttt | cgcacggact | ctgthtgagg | tctacaggag | 540 |
| tttgttaaaa | acttagtagg | atactacatc | attatggaag | ggattttctt | ctatagtggg | 600 |
| tttgtgatga | tccttttctt | ccacagacaa | aataagatga | ttggtatttg | agaacaatat | 660 |
| caatacatct | taagagatga | gacaatccac | ttgaactttg | gtattgattt | gatcaacggg | 720 |
| ataaaagaag | agaaccggga | gatttggtgact | ccagagttac | agcaagaaat | tgtcgaatta | 780 |
| attaagcgag | ctgtcgattt | agaaattgag | tatgcgcaag | actgtctccc | tagagggtt | 840 |
| ttgggattga | gagcttcgat | gttcatcgat | tatgtgcagc | atattgcaga | ccgtcgtttg | 900 |
| gaaagaatcg | gattaaaacc | tatttatcat | acgaaaaacc | cattcccttg | gatgagcgaa | 960 |
| acaatagacc | ttaataaaga | gaaaaacttc | tttgaaacaa | gggttataga | atatcaacat | 1020 |
| gcagcaagct | taacttgg | | | | | 1038 |

<210> 549

<211> 978

<212> DNA

<213> C. Trachomatis D serovar

<400> 549

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<211> 438
<212> DNA
<213> C. Trachomatis D serovar
```

```
<210> 551
<211> 1581
<212> DNA
<213> C. Trachomatis D serovar
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| | | | | | | | | | |
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| <400> | 551 | | | | | | | | |
| atgccgtcat | tatcccaatc | ccgacgtatc | atccagcaat | cttccattcg | aaagatttgg | | | | 60 |
| aatcagatag | atacttctcc | taagcatggc | gtatgcgtac | cgttattttc | tctctatact | | | | 120 |
| caagaaagtt | gtgggatagg | tgaatttctt | gacctgattc | ctatgatcga | ttggtgtatc | | | | 180 |
| tcgtgtggtt | ttcaaatcct | tcaaattctt | ccgattaacg | atacagggtc | ctgttcgagt | | | | 240 |
| ccttacaata | gcatttcttc | gatagcactc | aatcctcttc | acctttctat | ctctgcgctc | | | | 300 |
| ccctataaag | aagaagtgcc | agctgcggaa | acacgcatac | gagaaatgca | gcaactctct | | | | 360 |
| caacttcttc | aagtacatta | tgaaaaagtt | cgctctatga | agagagattt | ttttcaagag | | | | 420 |
| tactaccgcg | tgtgtaaaaca | gaaaaaactc | actgatcatc | ctgattttta | tgccttctgt | | | | 480 |
| gaacaggaaa | aatatgtggt | acatccctac | gctctctttc | gctctatccg | agaacatttg | | | | 540 |
| gataaccttc | ctattaatca | ttggccaacc | acctacacag | atctctccca | gattaccgag | | | | 600 |
| catgaacgta | cttttgcgga | agatatacaa | tttcaactct | atctacagta | tttgtgcttc | | | | 660 |
| caacagatga | cacaagtgcg | ggagcatgcc | aattgcaaaa | gctgtctcat | caaaggggat | | | | 720 |
| atccctattc | taatcagtaa | agatagctgc | gatgtctggt | tttataggca | ttacttttcc | | | | 780 |
| tcttcagaat | ctgtagggtc | tcctcctgac | ctgtataatg | cggaagggtc | gaactggcat | | | | 840 |
| ttccccattt | gtaatatgaa | aactttgcaa | caagataact | acctctggtg | gaaggagcgc | | | | 900 |
| ctacgttatg | cggagaattt | ttactcttta | taccgtcttg | atcatgtcgt | cggctctctt | | | | 960 |
| cgatttttggg | tatgggatga | gtctggatgc | ggacgccttg | aacctcatga | tccgaaaaac | | | | 1020 |
| tatctagctc | aaggggcaaga | tatcttatct | cacctcttga | ccagttcatc | tatgctacct | | | | 1080 |

| | | | | | | |
|------------|------------|------------|------------|-------------|-------------|------|
| ataggagaag | atctgggaac | gatcccttcc | gatgtgaaac | gtatgctcga | gtcttttggc | 1140 |
| gtatgcgcca | ctagaattcc | tcgttgggaa | cgaaactggg | aggggaatgg | agcctatacc | 1200 |
| cctttcgatc | aatacgaccc | tctatccgtc | acaagcctct | ctactcatga | ttcctctaca | 1260 |
| ttagcctcat | ggtggaaaga | atctcctcag | gaatccaaac | tatttgctca | gttttttagga | 1320 |
| ctcccctatt | cttccaccct | atctcttcac | aatcatacog | aaatcctgaa | actctctcac | 1380 |
| aaaacctctt | ctatTTTTcg | catcaatctt | attaatgact | atctggctct | gttccccgat | 1440 |
| ttgatatcaa | aaactcctcg | ctacgaaaga | atcaatctgc | cagggaactat | ttcaaaaaat | 1500 |
| aattgggtgt | atcgagttaa | gccttctatt | gaagatttat | cctctcattc | taagctaaat | 1560 |
| tctttacttg | aggctctatt | t | | | | 1581 |

<210> 552

<211> 1950

<212> DNA

<213> C. Trachomatis D serovar

<400> 552

| | | | | | | |
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| atgaccatcc | ctattcatga | gaataaatat | tccatgatct | ccttcacacg | cacgataggt | 60 |
| tttcgtttat | ggcttatctg | tgtggcgcgt | attatgttcc | ccttagggat | caatatcttg | 120 |
| caattgaacc | ttcagcaata | caagaaaaca | ctctcctcta | tcaattccga | tctgcgagaa | 180 |
| aatgctttat | ttaaagctca | cactttacaa | caaaactattc | ctttaaatat | tgatatcctg | 240 |
| gctctctttt | cagaaatttt | tgatctagac | agaggagtcc | ctgctgaacc | ggatcttgct | 300 |
| ctaagtaaag | aaatggagaa | gatctttcac | tccacttata | aagagatttc | tctagtaaaa | 360 |
| aaagaggctg | atgggaaactt | tagagtgcgt | gcttctagcc | gcacggaaca | acttggtaaa | 420 |
| aactataacc | aagagatttt | cctatcagat | tctcaaccat | ttctcgctac | tttgcgacat | 480 |
| tccggttccg | attctcaggt | tctggctgtc | ttacaaaacga | atatttttga | tatcagctct | 540 |
| caagaagtcc | ttggcgtaact | ctataccctt | tccgatacca | actattttatt | aaatggatta | 600 |
| cttgcagcta | aagatcctct | ctccgtaaaa | actgcaattc | tctctaaaaa | tggcatcatt | 660 |
| cttcaagcaa | cagattcctc | tttagatctt | gtatcgatac | acaaaacggg | ttctaaagag | 720 |
| caattttgtg | atgttttctt | tccgatgat | atctgcccc | ctcatctctt | actacgcccc | 780 |
| cctttaaatc | togatcctct | tccctatggc | gagaatttcg | tttcattttg | cattgggaac | 840 |
| acagaaatgt | ggggatatat | ccactctcta | cctgagatgg | atttccgtat | attgacttat | 900 |
| gaagaaaaat | ctataatttt | tgcttcttta | tggcgacgaa | ccttactgta | ctttgcttat | 960 |
| ttttgttgcg | tacttttagg | aagcattaca | gcttttttag | ttgcaaaacg | cctatccaag | 1020 |
| cctatccgga | agctggctac | ggccatgatg | gaaactcgtc | gcaatcaaca | ccatccatat | 1080 |
| gaaccgcgatt | ctctgggctt | tgaatttaat | catctaggag | aaatctttta | ctccatgggtg | 1140 |
| caaagccttt | tgcaacagca | atcttttagca | gaaaaaaatt | tcgagatcaa | acagcatgca | 1200 |
| caaaatgcat | tacgactagg | agaagaagct | caacaatgcc | tgcttccctaa | ccagctgcct | 1260 |
| gattcccca | ctacagaaat | cgctaaagcc | tatattcctg | caattacggg | aggaggagat | 1320 |
| ttctttgata | tctttgttat | aggcgaaggt | ccccaaagta | aactctttct | aatcgttgct | 1380 |
| gatgcttccg | ggaaaggagt | caatgcgtgc | gcctactcct | tattcctgaa | aaacatgtta | 1440 |
| catacctttt | tgagtgagct | ctcctctatt | caagaagccg | ttcaacaaac | agctgctctc | 1500 |
| ttctatcaac | agacagctga | atctgggatg | tttgtaacac | tatgcattta | ttgttatcat | 1560 |
| tacgcaacac | gagaactaga | atactattct | tgtggccaca | acccagcgtg | tctccgagct | 1620 |
| cctaattggag | atatctcttt | cctgtcgcac | cctgggtatg | ccttaggatt | tttacctgaa | 1680 |
| gttctctctc | accctgctta | cactctcggt | cttgaagagg | agtctctttt | agtgtctctat | 1740 |
| accgatgggg | tgactgaagc | aagcaataag | catggagaga | tgtttggaga | agaacgctta | 1800 |
| aaagcattag | tggtctcggt | gacgaaacaa | agtgccgaag | aagccatcca | atctatcatg | 1860 |
| ttctctatta | agtcttttgt | gaaagattgc | ccacaacatg | acgatatcac | tttactcggt | 1920 |
| ttgaaaatac | ctaaggaacc | ttccgcttat | | | | 1950 |

<210> 553

<211> 939

<212> DNA

<213> C. Trachomatis D serovar

<400> 553

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|------------|------------|------------|------------|-------------|------------|----|

| | | | | | | |
|-------------|------------|------------|-------------|-------------|-------------|-----|
| actctaacgt | tttttattat | taagacgata | cccgagagatc | cttttaaatga | tgaaaacgga | 120 |
| aacatccttt | cgtcagaaac | tttagcacta | ttaaagaatc | gttacgggtt | agataagcct | 180 |
| ttattcacc | agtatcttat | ctatttgaaa | tgtctgctaa | cactagattt | cggggaatct | 240 |
| cttatctaca | aagatcgtag | tgtgatcagt | attattgctg | ccgctcttcc | atcttccgct | 300 |
| attcttggac | ttgaaagctt | gtgtttatcc | ctcttcggag | gcattactct | tggaattctg | 360 |
| gcagctttct | ataaaaaaag | ctgcggccga | actattttct | tttcttctgt | gattcagata | 420 |
| tcagtaccgg | cctttgttat | aggagccttt | ttacaatatg | tttttgctat | aaaatattct | 480 |
| tgtctaccca | tagcttgctg | gggaaatttc | tctcacacct | tattgccttc | aataagcttta | 540 |
| gcaattactc | ctatggcatt | cattactcag | ctaacctgtg | cctctgtttc | cgccaattta | 600 |
| aaaaaagatt | acgtcttatt | agcttacgct | aaaggacttt | ctccttttaa | gggtgtaata | 660 |
| aaacacattt | tgcctacgc | tttattccct | gtgatttcgt | actcagcttt | tcttataaca | 720 |
| actttaatga | ctggaacctt | ctctatagaa | aaccttttct | gcacccccgg | tcttgggaaa | 780 |
| tgggttcattt | gcagtattaa | acaaagagac | tacctatca | ccttaggact | ttctgtgttt | 840 |
| tacggggcct | ttttcatgct | aacttcactt | tgttgogacc | ttctgcaage | gtggatagat | 900 |
| ccacaaattc | gttattctta | tgggaaagaa | cgttctaaa | | | 939 |

<210> 554

<211> 3711

<212> DNA

<213> C. Trachomatis D serovar

<400> 554

| | | | | | | |
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| atcaagaagt | ttgttgccaa | agcagtggaa | tatcaaattc | ccgcgctcgc | tcttaccgat | 120 |
| cacgggaatt | tgtttggcgc | ggtcgaattt | tataagacct | gtaaacaaaa | cgcgattaaa | 180 |
| cctatcatcg | gggtgtgact | atacgtcgca | ccctcttctc | gtttcgataa | aaaaaaagaa | 240 |
| cgaaaaagcc | gagttgccaa | ccatctcatc | cttctttgta | aagatgaaga | agggtatcgc | 300 |
| aacctttgtt | tgtctctctc | tcttgcttac | acagaagggt | tttactatgt | gcctcgcata | 360 |
| gatagagatc | ttttgagcca | acactccaaa | ggacttatct | gcttatcagc | ctgtttatcc | 420 |
| ggatcgggtg | ctcaagctgc | attggaatct | gaagaagatt | tagaaaaaga | tcttttatgg | 480 |
| tatcaagatc | tgtttcaaga | agaacttttc | agtgaagtac | aactccacaa | atcctcagaa | 540 |
| gaaaaagtgg | ctctatttga | agaaacttgg | ttaaaacaaa | actactatca | attcattgag | 600 |
| aaacaactca | aagtaaatga | agctgtttta | gctacttcta | aacgccttgg | tattccttca | 660 |
| gttgctacaa | atgatattca | ctatttgaat | ccggacgatt | ggctcgcctca | tgaaatttta | 720 |
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| cctaaacgca | aaacctatcc | tagtagggaa | ttttatttta | aatcccttca | agagatcgca | 840 |
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| attattatct | ccaaagggat | gtgcgattac | ttgtcatttg | tctgggatat | tattaactgg | 1200 |
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| attacatttg | gcaccatgaa | agccaaaatg | gctattaagg | atgtgggtag | aacttttagat | 1500 |
| accccttag | ctaaagtga | cttcacgcgc | aaacatatct | ccgatcttaa | tgctaccatt | 1560 |
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| gctgcgggag | tgattatctg | tggagatcct | ctcactaacc | atatcccgat | ttgtgtccct | 1740 |
| aaagactcat | ccatgatttc | tactcagtac | tcaatgaagc | cagtagaaag | cgttggcatg | 1800 |
| cttaaagtgg | attttttggg | tctaaaaacc | ttaaccggca | ttcacatcgc | cacacaggcg | 1860 |
| atctataaaa | aaacaggcat | tctactccgg | gctgccacga | ttcctctaga | tgaccagaat | 1920 |
| actttctctc | ttcttcatca | aggtaaaacc | atggggatct | tccaaatgga | atctcgtggc | 1980 |
| atgcaagacc | ttgctaaaaa | cttacgcccc | gatgcgtttg | aagaaattat | agcgatcgga | 2040 |
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| ttgcctctta | tctctccaga | tgcagatttt | ttcgtaacag | atgatattct | ttctcttctt | 3660 |
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<211> 1689

<212> DNA

<213> C. Trachomatis D serovar

<400> 555

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| caccattcgt | tctccgataa | gcctcctcaa | attgctaaag | ctatgcggat | tacggggata | 120 |
| gcccctgcag | ctctatctct | gtcgcgtgta | gtcgcctgcg | ttattgccgt | ctctgcggga | 180 |
| ggagctgcca | ttcctcttgc | tgctcattagt | ggaattgctg | taatgtctgg | cctcttatcc | 240 |
| gctgccacca | ttatctgttc | tgcaaaaaag | gcttttgctc | aacgaaaaa | aaaacaacta | 300 |
| gaagagtcgc | ttccgttaga | taatgcgacc | gagcatgtga | gttacctgac | ctcagacacc | 360 |
| tcttatttta | atcaatggga | atccttaggt | gctctaaata | agcagttgtc | tcagattgac | 420 |
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| tccattaatc | actccatcga | agagatctcc | gatcgcttta | cgaaaatgct | ctctcttctt | 540 |
| cgattaagag | aacattttta | tcgaggagaa | gagcgttatg | ccccctattt | aagccctcct | 600 |
| ctacttaaca | agaatcgttt | gctgacccaa | atcacatcca | atatgattag | gatgctacca | 660 |
| aaatccggtg | gtgttttttc | cctcaaagcc | aatacactaa | gtcatgccag | ccgcacacta | 720 |
| tatacagtat | taaaagtgcg | tttatectta | ggagttctcg | ctggagtcgc | tgctcttatc | 780 |
| atctttcttc | cccctagcct | gcctttttatc | gctgttatag | gagtatcttc | cttagcattg | 840 |
| gggatggcat | ctttccttat | gattcggggc | attaagtatt | tgctcgaaca | ttctcctctg | 900 |
| aatagaaagc | aactagctaa | agatattcaa | aaaaccattg | gcccagatgt | cttgccctct | 960 |
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| atcacagcta | gatggagcga | gcccttcttt | attgaacacg | ctaactctta | ggcaaaaatt | 1080 |
| gaagattttg | caaaacaata | tgatatattg | aacgcagcct | ttaataaatc | tttacaacaa | 1140 |
| gatgagggcg | tccgttctca | attagagaaa | cgagcttact | tattcccaat | tcctaataac | 1200 |
| gacgaaaatg | ctaaaactaa | agaatcgag | cttctagact | cagaaaatga | ttcaaattct | 1260 |
| gaatttcagg | agattataaa | taaaggacta | gaagctgcca | ataaacgacg | agctgacgct | 1320 |
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<210> 556
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| tgcttcccag | aacctaaaga | attaaatttc | tctcgcgtag | gaacttcttc | ctctaccact | 120 |
| tttactgaaa | cagttggaga | agctggggca | gaatatatcg | tctctggtaa | cgcattctttc | 180 |
| acaaaattta | ccaacattcc | tactaccgat | acaacaactc | ccacgaactc | aaactcctct | 240 |
| agctctaacg | gagagactgc | ttccgtttct | gaggatagtg | actctacaac | aacgactcct | 300 |
| gatcctaag | gtggcggcgc | cttttataac | gcgcactccg | gagttttatc | ctttatgaca | 360 |
| cgatcaggaa | cagaaggttc | cttaactctg | tctgagataa | aaataactgg | tgaaggcggt | 420 |
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| attactaaag | cgactttctc | ctccaactct | gcagaagttc | ctgctcctgt | taagaaacct | 600 |
| acagaaccta | aagctcaaac | agcaagcgaa | acgtcgggtt | ctagtagttc | tagcggaat | 660 |
| gattcgggtg | cttccccag | ttccagtaga | gctgaaccgg | cagcagctaa | tcttcaaagt | 720 |
| cactttattt | gtgctacag | tactcctgct | gctcaaaccg | atacagaaac | atcaactccc | 780 |
| tctcataagc | caggatctgg | gggagctatc | tatgctaaag | gcgaccttac | tatcgcacag | 840 |
| tctcaaggag | tactattctc | aataaataaa | gctactaaag | atggaggagc | gacttttgct | 900 |
| gagaaagatg | tttctttcga | gaatattaca | tcattaaaag | tacaaactaa | cgggtgctgaa | 960 |
| gaaaagggag | gagctatcta | tgctaaaggt | gacctctcaa | ttcaatcttc | taaacagagt | 1020 |
| ctttttaatt | ctaactacag | taaacaaaggt | ggtggggctc | tatatgttga | aggagatata | 1080 |
| aacttccaag | atcttgaaga | aattcgcatt | aagtacaata | aagctggaac | gttcgaaaca | 1140 |
| aaaaaaatca | ctttaccaaa | agctcaagca | tctgcaggaa | atgcagatgc | ttgggcctct | 1200 |
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| aaacgtcttg | ccttatctaa | ccttcaaagc | atttctatat | ccgggaattc | tgcagctgaa | 1860 |
| aatggtggtg | gagcccacac | atgccagat | agcttcccaa | cggcggtatc | tgcagaacag | 1920 |
| cccgcagcag | cttctgccgc | gacgtctact | cccaggtctg | ccccagtggt | ctcaactgct | 1980 |
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| | | | | | | |
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<211> 792

<212> DNA

<213> C. Trachomatis D serovar

<400> 557

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| acacctgtcg | cagccaaaat | gacagcttct | gatggaatat | ctttaacagt | ctccaataat | 180 |
| tcatcaacca | atgcttctat | tacaattgggt | ttggatgcgg | aaaaagctta | ccagcttatt | 240 |

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tgcataatag aactccacc tagcctagga gggttaacga aagaagcttt tgttgcagga 360
gacaaattaa ttgcttgttt aactccagaa cctttttcta ttctagggtt acaaaagata 420
cgtgaattct taagtctcgg cggaaaacct gaagaagaac acattcttgg aatagctttg 480
tctttttggg atgatcgtaa ctgcactaac caaatgtata tagacattat cgagtctatt 540
tacaaaaaca agcttttttc aacaaaaatt cgctcgagata tttctctcag ccgttctctt 600
cttaaagaag attctgtagc taatgtctat ccaaattcta gggccgcaga agatattctg 660
aagttaacgc atgaaatagc aaatattttg catatogaat atgaacgaga ttactctcag 720
aggacaacg 729

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<210> 560

<211> 289

<212> PRT

<213> C. Trachomatis D serovar

<400> 560

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Met Thr His Gln His Lys Lys Ile Ser Glu Glu Thr Ile Ala Cys Asp
 1             5             10             15
Met Leu Glu Arg Tyr Thr Gly Ser Thr Val Gln Glu Phe Gln Pro Tyr
                20             25             30
Leu Leu Leu Thr Asn Phe Ala Tyr Tyr Val Asp Val Phe Ala Glu Ile
                35             40             45
Tyr Gln Val Pro Val Ser Arg Gly Ser Met Phe Ser Ala Ala His Ala

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50 55 60
 Pro Gln Ile His Thr Ser Ile Ile Asp Phe Lys Leu Gly Ser Pro Gly
 65 70 75 80
 Ala Ala Leu Thr Val Asp Leu Cys Ser Phe Leu Pro Asn Ala Thr Ala
 85 90 95
 Ala Ile Met Leu Gly Met Cys Gly Gly Leu Arg Ser His Tyr Gln Ile
 100 105 110
 Gly Asp Tyr Phe Val Pro Val Ala Ser Ile Arg Lys Asp Gly Thr Ser
 115 120 125
 Asp Ala Tyr Phe Pro Pro Glu Val Pro Ala Leu Ala Asn Phe Val Val
 130 135 140
 Gln Lys Met Ile Thr Asn Ile Leu Glu Ala Lys Asn Leu Pro Tyr His
 145 150 155 160
 Ile Gly Ile Thr His Thr Thr Asn Ile Arg Phe Trp Glu Phe Asn Lys
 165 170 175
 Glu Phe Arg Arg Lys Leu Tyr Glu Asn Lys Ala Gln Thr Val Glu Met
 180 185 190
 Glu Cys Ala Thr Leu Phe Ala Ala Gly Tyr Arg Arg Asn Leu Pro Leu
 195 200 205
 Gly Ala Leu Leu Leu Ile Ser Asp Leu Pro Leu Arg Lys Asp Gly Ile
 210 215 220
 Lys Thr Lys Glu Ser Ser Ser Ala Val Leu Asn Ser His Thr Lys Glu
 225 230 235 240
 His Ile Leu Thr Gly Val Glu Val Phe Ala Ser Leu Gln Glu Lys Ser
 245 250 255
 Gly Pro Gly Ile Lys Lys Thr Lys Gly Leu Pro His Met Glu Phe Gly
 260 265 270
 Gln Ala Asp Asp Ser Leu Ser Glu Gln Thr Glu Val Ser Gly Gly Asp
 275 280 285
 Phe

<210> 561
 <211> 394
 <212> PRT
 <213> C. Trachomatis D serovar

<400> 561
 Met Ser Lys Glu Thr Phe Gln Arg Asn Lys Pro His Ile Asn Ile Gly
 1 5 10 15
 Thr Ile Gly His Val Asp His Gly Lys Thr Thr Leu Thr Ala Ala Ile
 20 25 30
 Thr Arg Ala Leu Ser Gly Asp Gly Leu Ala Asp Phe Arg Asp Tyr Ser
 35 40 45
 Ser Ile Asp Asn Thr Pro Glu Glu Lys Ala Arg Gly Ile Thr Ile Asn
 50 55 60
 Ala Ser His Val Glu Tyr Glu Thr Ala Asn Arg His Tyr Ala His Val
 65 70 75 80
 Asp Cys Pro Gly His Ala Asp Tyr Val Lys Asn Met Ile Thr Gly Ala
 85 90 95
 Ala Gln Met Asp Gly Ala Ile Leu Val Val Ser Ala Thr Asp Gly Ala
 100 105 110
 Met Pro Gln Thr Lys Glu His Ile Leu Leu Ala Arg Gln Val Gly Val
 115 120 125
 Pro Tyr Ile Val Val Phe Leu Asn Lys Ile Asp Met Ile Ser Glu Glu
 130 135 140
 Asp Ala Glu Leu Val Asp Leu Val Glu Met Glu Leu Val Glu Leu Leu

145 150 155 160
 Cys Gly Ala Asp Tyr Glu Ala Arg Asp Leu Lys Glu Pro Arg Ser Lys
 165 170 175
 Leu Thr Gly Ala Ala Leu Ser Leu Arg Asp Thr Glu His Ala Tyr Leu
 180 185 190
 His Leu Glu Arg Met Lys Glu Asp Leu Leu Ala Phe Val Gln Gly Ile
 195 200 205
 Tyr Leu Arg Pro His Met Arg Asn Phe Val Thr Asp Tyr Ile Glu His
 210 215 220
 Leu Arg Pro Arg Ala Val Thr Arg Asp Leu Ser Trp Gly Ile Pro Val
 225 230 235 240
 Pro Asp Leu Glu Asn Lys Val Phe Tyr Val Trp Phe Asp Ala Pro Ile
 245 250 255
 Gly Tyr Ile Ser Gly Thr Met Asp Trp Ala Ala Ser Ile Gly Asp Pro
 260 265 270
 Glu Ala Trp Lys Lys Phe Trp Leu Asp Asp Thr Val Thr Tyr Ala Gln
 275 280 285
 Phe Ile Gly Lys Asp Asn Thr Ser Phe His Ala Ala Ile Phe Pro Ala
 290 295 300
 Met Glu Ile Gly Gln Ser Leu Pro Tyr Lys Lys Val Asp Ala Leu Val
 305 310 315 320
 Thr Ser Glu Phe Leu Leu Leu Glu Gly Phe Gln Phe Ser Lys Ser Asp
 325 330 335
 Gly Asn Phe Ile Asp Met Asp Ala Phe Leu Glu Thr Tyr Ser Leu Asp
 340 345 350
 Lys Leu Arg Tyr Val Leu Ala Ala Ile Ala Pro Glu Thr Ser Asp Ser
 355 360 365
 Glu Phe Ser Phe Gln Glu Phe Lys Thr Arg Cys Asn Ser Glu Leu Val
 370 375 380
 Gly Lys Tyr Gly Asn Phe Val Asn Arg Val Leu Ala Phe Ala Val Lys
 385 390 395 400
 Asn Gly Cys Thr Glu Leu Ser Ser Pro Gln Leu Glu Gln Lys Asp Leu
 405 410 415
 Asp Phe Ile Ser Lys Ser Gln Lys Leu Ala Lys Asp Ala Ala Glu His
 420 425 430
 Tyr Ala Gln Tyr Ser Leu Arg Lys Ala Cys Ser Thr Ile Met Glu Leu
 435 440 445
 Ala Ala Leu Gly Asn Gly Tyr Phe Asn Asp Glu Ala Pro Trp Lys Leu
 450 455 460
 Ala Lys Glu Gly Asn Trp Asn Arg Val Arg Ala Ile Leu Phe Cys Ala
 465 470 475 480
 Cys Tyr Cys Gln Lys Leu Leu Ala Leu Ile Ser Tyr Pro Ile Met Pro
 485 490 495
 Glu Thr Ala Leu Lys Ile Leu Glu Met Ile Ala Pro His Ser Leu Asp
 500 505 510
 Leu Gly Ser Gln Asp Pro Asp Arg Leu Gln Ser Leu Trp Thr Asp Ser
 515 520 525
 Phe Phe Asp Tyr Ser Glu Glu Lys Phe Ser Leu Lys Glu Pro Glu Leu
 530 535 540
 Leu Phe Thr Met Val Glu
 545 550

<210> 563

<211> 100

<212> PRT

<213> C. Trachomatis D serovar

His Ile Asp His Gly Lys Ser Thr Ile Ala Asp Arg Leu Leu Glu Ser
 20 25 30
 Thr Ser Thr Ile Glu Gln Arg Glu Met Arg Glu Gln Leu Leu Asp Ser
 35 40 45
 Met Asp Leu Glu Arg Glu Arg Gly Ile Thr Ile Lys Ala His Pro Val
 50 55 60
 Thr Met Thr Tyr Glu Tyr Glu Gly Glu Thr Tyr Glu Leu Asn Leu Ile
 65 70 75 80
 Asp Thr Pro Gly His Val Asp Phe Ser Tyr Glu Val Ser Arg Ser Leu
 85 90 95
 Ala Ala Cys Glu Gly Ala Leu Leu Ile Val Asp Ala Ala Gln Gly Val
 100 105 110
 Gln Ala Gln Ser Leu Ala Asn Val Tyr Leu Ala Leu Glu Arg Asp Leu
 115 120 125
 Glu Ile Ile Pro Val Leu Asn Lys Ile Asp Leu Pro Ala Ala Gln Pro
 130 135 140
 Glu Ala Ile Lys Lys Gln Ile Glu Glu Phe Ile Gly Leu Asp Thr Ser
 145 150 155 160
 Asn Thr Ile Ala Cys Ser Ala Lys Thr Gly Gln Gly Ile Pro Glu Ile
 165 170 175
 Leu Glu Ser Ile Ile Arg Leu Val Pro Pro Pro Lys Pro Pro Gln Glu
 180 185 190
 Thr Glu Leu Lys Ala Leu Ile Phe Asp Ser His Tyr Asp Pro Tyr Val
 195 200 205
 Gly Ile Met Val Tyr Val Arg Val Ile Ser Gly Glu Ile Lys Lys Gly
 210 215 220
 Asp Arg Ile Thr Phe Met Ala Thr Lys Gly Ser Ser Phe Glu Val Leu
 225 230 235 240
 Gly Ile Gly Ala Phe Leu Pro Glu Ala Thr Leu Met Glu Gly Ser Leu
 245 250 255
 Arg Ala Gly Gln Val Gly Tyr Phe Ile Ala Asn Leu Lys Lys Val Lys
 260 265 270
 Asp Val Lys Ile Gly Asp Thr Val Thr Thr Val Lys His Pro Ala Lys
 275 280 285
 Glu Pro Leu Glu Gly Phe Lys Glu Ile Lys Pro Val Val Phe Ala Gly
 290 295 300
 Ile Tyr Pro Ile Asp Ser Ser Asp Phe Asp Thr Leu Lys Asp Ala Leu
 305 310 315 320
 Gly Arg Leu Gln Leu Asn Asp Ser Ala Leu Thr Ile Glu Gln Glu Asn
 325 330 335
 Ser His Ser Leu Gly Phe Gly Phe Arg Cys Gly Phe Leu Gly Leu Leu
 340 345 350
 His Leu Glu Ile Ile Phe Glu Arg Ile Ser Arg Glu Phe Asp Leu Asp
 355 360 365
 Ile Ile Ala Thr Ala Pro Ser Val Ile Tyr Lys Val Val Leu Lys Asn
 370 375 380
 Gly Lys Thr Leu Phe Ile Asp Asn Pro Thr Ala Tyr Pro Asp Pro Ala
 385 390 395 400
 Leu Ile Glu His Met Glu Glu Pro Trp Val His Val Asn Ile Ile Thr
 405 410 415
 Pro Gln Glu Tyr Leu Ser Asn Ile Met Ser Leu Cys Met Asp Lys Arg
 420 425 430
 Gly Ile Cys Leu Lys Thr Asp Met Leu Asp Gln His Arg Leu Val Leu
 435 440 445
 Ser Tyr Glu Leu Pro Leu Asn Glu Ile Val Ser Asp Phe Asn Asp Lys
 450 455 460
 Leu Lys Ser Val Thr Lys Gly Tyr Gly Ser Phe Asp Tyr Arg Leu Gly

465 470 475 480
 Asp Tyr Lys Lys Gly Ala Ile Ile Lys Leu Glu Ile Leu Ile Asn Asp
 485 490 495
 Glu Ala Val Asp Ala Phe Ser Cys Leu Val His Arg Asp Lys Ala Glu
 500 505 510
 Ser Lys Gly Arg Ser Ile Cys Glu Lys Leu Val Asp Val Ile Pro Pro
 515 520 525
 Gln Leu Phe Lys Ile Pro Ile Gln Ala Ala Ile Asn Lys Lys Ile Ile
 530 535 540
 Ala Arg Glu Thr Ile Arg Ala Leu Ala Lys Asn Val Thr Ala Lys Cys
 545 550 555 560
 Tyr Gly Gly Asp Ile Thr Arg Lys Arg Lys Leu Trp Asp Lys Gln Lys
 565 570 575
 Lys Gly Lys Lys Arg Met Lys Glu Phe Gly Lys Val Ser Ile Pro Asn
 580 585 590
 Thr Ala Phe Val Glu Val Leu Lys Met Glu
 595 600

<210> 566
 <211> 324
 <212> PRT
 <213> C. Trachomatis D serovar

<400> 566
 Met Glu Leu Leu Pro His Glu Lys Gln Val Val Glu Tyr Glu Lys Thr
 1 5 10 15
 Ile Ala Glu Phe Lys Glu Lys Asn Lys Glu Asn Ser Leu Leu Ser Ser
 20 25 30
 Ser Glu Ile Gln Lys Leu Asp Lys Arg Leu Asp Arg Leu Lys Glu Lys
 35 40 45
 Ile Tyr Ser Asp Leu Thr Pro Trp Glu Arg Val Gln Ile Cys Arg His
 50 55 60
 Pro Ser Arg Pro Arg Thr Val Asn Tyr Ile Glu Gly Met Cys Glu Glu
 65 70 75 80
 Phe Val Glu Leu Cys Gly Asp Arg Thr Phe Arg Asp Asp Pro Ala Val
 85 90 95
 Val Gly Gly Phe Ala Lys Ile Gln Gly Gln Arg Phe Met Leu Ile Gly
 100 105 110
 Gln Glu Lys Gly Cys Asp Thr Lys Ser Arg Met His Arg Asn Phe Gly
 115 120 125
 Met Leu Cys Pro Glu Gly Phe Arg Lys Ala Leu Arg Leu Ala Lys Met
 130 135 140
 Ala Glu Lys Phe Gly Leu Pro Ile Ile Phe Leu Val Asp Thr Pro Gly
 145 150 155 160
 Ala Phe Pro Gly Leu Thr Ala Glu Glu Arg Gly Gln Gly Trp Ala Ile
 165 170 175
 Ala Thr Asn Leu Phe Glu Leu Ala Arg Leu Ala Thr Pro Ile Ile Val
 180 185 190
 Ile Val Ile Gly Glu Gly Cys Ser Gly Gly Ala Leu Gly Met Ala Ile
 195 200 205
 Gly Asp Val Val Ala Met Leu Glu His Ser Tyr Tyr Ser Val Ile Ser
 210 215 220
 Pro Glu Gly Cys Ala Ser Ile Leu Trp Lys Asp Pro Lys Lys Asn Ser
 225 230 235 240
 Asp Ala Ala Ala Met Leu Lys Met His Gly Glu Asp Leu Lys Gly Phe
 245 250 255
 Ala Ile Val Asp Ala Val Ile Lys Glu Pro Ile Gly Gly Ala His His

260 265 270
 Asn Pro Ala Ala Thr Tyr Arg Ser Val Gln Glu Tyr Val Leu Gln Glu
 275 280 285
 Trp Leu Lys Leu Lys Asp Leu Pro Val Glu Glu Leu Leu Glu Lys Arg
 290 295 300
 Tyr Gln Lys Phe Arg Thr Ile Gly Leu Tyr Glu Thr Ser Ser Glu Ser
 305 310 315 320
 Asp Ser Glu Ala

<210> 567

<211> 646

<212> PRT

<213> C. Trachomatis D serovar

<400> 567

Met Lys Leu Leu Leu Lys Ala Ile Leu Arg His Lys Lys His Leu Val
 1 5 10 15
 Leu Phe Gly Phe Ser Leu Leu Ser Ile Leu Gly Leu Thr Ile Thr Ser
 20 25 30
 Gln Ala Glu Ile Phe Ser Leu Gly Leu Ile Ala Lys Thr Gly Pro Asp
 35 40 45
 Thr Phe Leu Leu Phe Gly Lys Gln Glu Gly Ala Ser Leu Val Lys Arg
 50 55 60
 Lys Glu Leu Ser Lys Asp Gln Leu Leu Glu Gln Trp Asp Asn Ile Val
 65 70 75 80
 Gly Glu Gly Asp Thr Leu Ser Leu Pro Gln Ala Asn Ala Tyr Ile Ala
 85 90 95
 Lys His Ser Gly Gly Ser Gln Ser Ile Thr Lys Arg Leu Ser Ala Tyr
 100 105 110
 Leu Ser Gly Cys Phe Asp Phe Ser Arg Leu Gln Cys Leu Ala Leu Phe
 115 120 125
 Leu Val Val Val Ala Ile Leu Lys Ser Thr Thr Leu Phe Phe Gln Arg
 130 135 140
 Phe Leu Ala Gln Leu Ile Ala Ile Arg Val Ser Cys Ser Leu Arg Lys
 145 150 155 160
 Asp Tyr Phe Leu Ala Leu Gln Thr Leu Pro Met Thr Phe Phe His Ala
 165 170 175
 His Asp Met Gly Asn Leu Ser Ser Arg Val Ile Ala Asp Ser Ser Met
 180 185 190
 Ile Ala Leu Ala Ile Asn Ala Leu Met Val Asn Tyr Ile Gln Ala Pro
 195 200 205
 Ile Thr Met Thr Leu Ala Leu Val Val Cys Leu Ser Ile Ser Trp Lys
 210 215 220
 Phe Cys Ala Cys Val Cys Leu Ala Phe Pro Ile Phe Ile Leu Pro Ile
 225 230 235 240
 Val Ile Ile Ala Lys Lys Val Lys Ala Leu Ala Lys Arg Ile Gln Lys
 245 250 255
 Ser Gln Asp His Ser Ala Ala Ala Leu Leu Asp Phe Leu Leu Gly Ile
 260 265 270
 Leu Thr Val Lys Val Phe Arg Thr Glu Gln Phe Ser Phe Ser Lys Tyr
 275 280 285
 Cys Gln Lys Asn Asp Glu Ile Ala Arg Leu Glu Glu Arg Ser Ala Ala
 290 295 300
 Tyr Ser Leu Ile Pro Arg Pro Leu Leu His Thr Ile Ala Ser Leu Phe
 305 310 315 320
 Phe Ala Leu Val Ile Met Ile Gly Leu Tyr His Phe His Ile Pro Pro

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Glu Glu Leu Val Val Phe Cys Gly Leu Leu Tyr Leu Ile Tyr Asp Pro
 325 340 345 350
 Ile Lys Lys Phe Ala Asp Glu Asn Ala Asn Ile Met Trp Gly Cys Ala
 355 360 365
 Ala Ala Glu Arg Phe Tyr Glu Val Leu Asp Leu Ala Lys Gln Gln Ser
 370 375 380
 Asn Val Ser Glu Lys Leu Asn Glu Phe Gln Gly Leu Gln His Ser Ile
 385 390 395 400
 Gln Phe Cys Asn Val Ser Phe Gly Tyr Val Glu Asp Ser Pro Val Leu
 405 410 415
 Ser Asp Phe Asn Leu Val Leu Lys Lys Gly Glu Ala Ile Gly Ile Val
 420 425 430
 Gly Pro Thr Gly Ser Gly Lys Ser Thr Ile Ala Lys Leu Leu Pro Arg
 435 440 445
 Leu Tyr Glu Val Ser His Gly Glu Leu Leu Ile Asp Ser Leu Pro Ile
 450 455 460
 Arg Ser Tyr Cys Lys Asn Ser Leu Arg Lys His Ile Gly Cys Val Leu
 465 470 475 480
 Gln His Pro Phe Leu Phe Tyr Asp Thr Val Trp Asn Asn Leu Thr Cys
 485 490 495
 Gly Arg Thr Phe Ser Glu Glu Glu Val Phe His Ala Leu Lys Gln Ala
 500 505 510
 His Ala Tyr Glu Phe Val Ser Lys Met Pro Gln Gly Val His Ser Leu
 515 520 525
 Leu Glu Glu Ser Ser Lys Asn Leu Ser Gly Gly Gln Gln Gln Arg Leu
 530 535 540
 Thr Ile Ala Arg Ala Leu Leu His Asn Thr Ser Ile Leu Leu Leu Asp
 545 550 555 560
 Glu Ala Thr Ser Ala Leu Asp Ala Ile Ser Glu Asn Tyr Val Lys Glu
 565 570 575
 Ile Val Gly Gln Leu Lys Gly Arg Cys Thr Gln Ile Ile Ile Ala His
 580 585 590
 Lys Leu Ser Thr Leu Glu Tyr Val Asp Arg Ile Val Tyr Leu Glu Gln
 595 600 605
 Gly Lys Lys Ile Ala Glu Gly Thr Lys Glu Glu Leu Leu Asp Ser Cys
 610 615 620
 Pro Ala Phe Gln Arg Met Trp Val Leu Ser Gly Ala Lys Asp Trp Glu
 625 630 635 640
 Leu Asn Ala Val Val Lys
 645

<210> 568

<211> 414

<212> PRT

<213> C. Trachomatis D serovar

<400> 568

Met Phe Ser Ser Ala Ile Val Ile Leu Thr Ala Ile Phe Val Leu Cys
 1 5 10 15
 Ser Gly Phe Val Ser Leu Ser His Ile Ala Leu Phe Ser Leu Pro Ser
 20 25 30
 Ser Leu Ile Ala His Tyr Ser His Ser Lys Asn Arg Gln Leu Arg Gln
 35 40 45
 Ile Ala Asn Leu Met Ala Tyr Pro Asn His Leu Leu Met Thr Leu Val
 50 55 60
 Phe Phe Asp Ile Gly Ile Asn Ile Gly Val Gln Asn Cys Ile Ala Thr

0344 0430
 T0E210" 2E2T0E60

65 70 75 80
 Leu Val Gly Asp Ser Ala Ser Leu Leu Leu Thr Val Gly Val Pro Leu
 85 90 95
 Ala Leu Thr Leu Val Leu Gly Glu Ile Val Pro Lys Val Ile Ala Ile
 100 105 110
 Pro Tyr Asn Ala Arg Ile Ala Lys Ile Val Thr Pro Ile Ile Phe Ala
 115 120 125
 Ser Thr Lys Ser Phe Arg Pro Ile Phe Asp Trp Ala Ile Ser Gly Ile
 130 135 140
 Asn Phe Ile Val Gln Lys Met Leu Ala Arg Gln Glu Ser Asp Phe Ile
 145 150 155 160
 Gln Pro Gln Glu Leu Lys Glu Val Leu Arg Ser Cys Lys Asp Phe Gly
 165 170 175
 Val Val Asn His Glu Glu Ser Arg Leu Leu Phe Gly Tyr Leu Ser Met
 180 185 190
 Glu Glu Gly Ser Ile Lys Glu Arg Met Thr Pro Lys Gln Glu Ile Ile
 195 200 205
 Phe Tyr Asp Val Leu Thr Pro Ile Glu Asn Leu Tyr Lys Leu Phe Ser
 210 215 220
 Gly Pro Lys Gln Ser Tyr Ser Lys Val Leu Val Cys Lys Gly Gly Leu
 225 230 235 240
 Gln Asn Leu Leu Gly Val Cys Ser Ala Lys Leu Leu Leu Leu Tyr Lys
 245 250 255
 Glu Lys Leu Gln Ser Ala Glu Glu Leu Leu Pro Leu Leu Arg Lys Pro
 260 265 270
 His Tyr Ile Pro Glu Thr Val Ser Ala Lys Thr Ala Leu Tyr His Leu
 275 280 285
 Ala Gly Glu Asp Cys Gly Leu Gly Ile Ile Ile Asp Glu Tyr Gly Ser
 290 295 300
 Ile Glu Gly Leu Ile Thr Gln Asn Asp Leu Phe Lys Ile Val Ser Asp
 305 310 315 320
 Gly Val Ala His Asn Arg Pro Ser Phe Lys Gln Phe Ala His Ser Asp
 325 330 335
 Lys Asn Val Val Ile Ala Ala Gly Thr Tyr Glu Leu Ser Asp Phe Tyr
 340 345 350
 Asp Leu Phe Gly Val Asp Leu Pro Thr Thr Ala Asn Cys Val Thr Ile
 355 360 365
 Gly Gly Trp Leu Thr Glu Gln Leu Gly Glu Ile Pro Glu Thr Gly Thr
 370 375 380
 Lys Phe Ala Trp Gly Gln Phe Val Phe Gln Ile Leu Asp Ala Ala Pro
 385 390 395 400
 Asn Cys Val Lys Arg Val Tyr Ile Arg Lys Thr His Gly Asn
 405 410

<210> 569

<211> 404

<212> PRT

<213> C. Trachomatis D serovar

<400> 569

Met Glu Thr Asn Ser Pro Phe Phe Trp Leu Gly Val Asn Leu Leu Cys
 1 5 10 15
 Ile Phe Val Gln Gly Phe Phe Ser Met Met Glu Met Ala Cys Ile Ser
 20 25 30
 Phe Asn Arg Val Arg Leu Gln Tyr Tyr Leu Thr Lys Ser Asn Lys Lys
 35 40 45
 Ala Ser Tyr Ile Asn Phe Leu Val Arg Arg Pro Tyr Arg Leu Phe Gly

50 55 60
 Thr Val Met Leu Gly Val Asn Ile Ala Leu Gln Ile Gly Ser Glu Ser
 65 70 75 80
 Ser Arg Thr Cys Tyr Lys Leu Leu Gly Ile Ser Pro Glu Tyr Ala Pro
 85 90 95
 Ala Thr Gln Ile Ile Leu Val Val Ile Phe Ala Glu Leu Ile Pro Leu
 100 105 110
 Ala Ile Ser Arg Lys Ile Pro Glu Lys Ile Ala Leu Lys Gly Ala Pro
 115 120 125
 Ile Leu Tyr Phe Ala His Tyr Leu Phe Tyr Pro Leu Ile Gln Cys Val
 130 135 140
 Gly Gly Ile Thr Asn Met Ile Tyr Phe Ile Leu Asn Ile Lys Glu Glu
 145 150 155 160
 Thr Leu His Ser Thr Leu Ser Arg Asp Glu Leu Gln Lys Thr Leu Glu
 165 170 175
 Thr His His Glu Glu His Asp Phe Asn Val Ile Ala Thr Asn Ile Phe
 180 185 190
 Ser Leu Ser Ala Thr Ser Val Glu Gln Val Cys Gln Tyr Leu Asp Gln
 195 200 205
 Ile Pro Ile Leu Ser Ala Thr Ala Ser Val Arg Asp Val Cys Gln Leu
 210 215 220
 Val Arg Arg His Arg Leu Asp Phe Val Pro Val Tyr His Lys Val Lys
 225 230 235 240
 Lys Asn Val Val Gly Ile Ala Phe Pro Lys Asn Leu Ile Asn Arg Asn
 245 250 255
 Pro Ser Asp Pro Val Val Pro Tyr Leu Ser Ser Pro Trp Phe Ile Thr
 260 265 270
 Ala Lys Ser Lys Leu Ile His Ala Ile Gln Glu Phe Arg Lys Asn Ser
 275 280 285
 Ser Asn Val Ala Ile Val Leu Asn Asn Asn Gly Glu Pro Met Gly Val
 290 295 300
 Leu Gly Leu His Thr Val Phe Lys Thr Leu Phe Asn Thr Arg Asn Ile
 305 310 315 320
 Ala Gln Leu Lys Pro Lys Pro Thr Ser Leu Ile Glu Arg Thr Phe Ser
 325 330 335
 Gly Asn Thr Pro Leu Ser Glu Ile Glu Asn Glu Leu Asp Ile Ile Phe
 340 345 350
 Met Asp Asn Asp Cys Thr Thr Ile Glu Gln Leu Met Leu Lys Leu Leu
 355 360 365
 Asp Thr Pro Pro Glu Val Gly Ala Ser Ile Ile Ile Asn Asp Leu Leu
 370 375 380
 Leu Glu Val Lys Glu Ile Ser Leu Tyr Gly Ile Lys Thr Val Ala Ile
 385 390 395 400
 Lys Asp Thr Leu

<210> 570
 <211> 539
 <212> PRT
 <213> C. Trachomatis D serovar

<400> 570
 Met Cys Cys Val Asp Gly Ser Asn Ser Ile Gln Gln Arg Met Arg Phe
 1 5 10 15
 Cys Glu Tyr Arg Thr Ala Ala Gln Glu Ala Lys Thr Ser Leu Ser Ser
 20 25 30
 Asp Cys Ser Leu Leu Glu Ala Arg Leu Ala Leu Arg Ala Leu Ala Lys

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | | 35 | | | | | 40 | | | | | 45 | | | |
| His | His | Glu | Tyr | Ser | Ala | Trp | Arg | Glu | Ala | Phe | Leu | Arg | Ser | Gln | Glu |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Arg | Phe | Pro | Ser | Leu | Glu | Ala | Asp | Arg | Asp | Ile | His | Glu | Asp | Leu | Ala |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Ala | Ser | Leu | Leu | Gln | Lys | Asn | Ile | Arg | His | Ser | Ser | Leu | Thr | Val | Arg |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Val | Ile | Thr | Ile | Leu | Ala | Val | Gly | Met | Ala | Arg | Asp | Tyr | Arg | Leu | Val |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Pro | Ile | Val | Leu | Gln | Ala | Leu | Ser | Asp | Asp | Ser | Asp | Thr | Val | Arg | Glu |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Ile | Ala | Val | Gln | Val | Ala | Val | Met | Tyr | Gly | Ser | Ser | Cys | Leu | Leu | Arg |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Ala | Val | Gly | Asp | Leu | Ala | Lys | Asn | Asp | Ser | Ser | Ile | Gln | Val | Arg | Ile |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Thr | Ala | Tyr | Arg | Ala | Ala | Ala | Val | Leu | Glu | Ile | Gln | Asp | Leu | Val | Pro |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| His | Leu | Arg | Val | Val | Val | Gln | Asn | Thr | Gln | Leu | Asp | Gly | Thr | Glu | Arg |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Arg | Glu | Ala | Trp | Arg | Ser | Leu | Cys | Val | Leu | Thr | Arg | Pro | His | Ser | Gly |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Val | Leu | Thr | Gly | Ile | Asp | Gln | Ala | Leu | Met | Thr | Cys | Glu | Met | Leu | Lys |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Glu | Tyr | Pro | Glu | Lys | Cys | Thr | Glu | Glu | Gln | Ile | Arg | Thr | Leu | Leu | Ala |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Ala | Asp | His | Pro | Glu | Val | Gln | Val | Ala | Thr | Leu | Gln | Ile | Ile | Leu | Arg |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Gly | Gly | Arg | Val | Phe | Arg | Ser | Ser | Ser | Ile | Met | Glu | Ser | Val | Gln | Lys |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Leu | Ala | Cys | Asn | Ser | Leu | Ser | Ala | Arg | Val | Gln | Met | Gln | Ala | Ala | Ala |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Ile | Leu | Tyr | Leu | Glu | Gly | Asp | Pro | Phe | Gly | Glu | Asp | Lys | Leu | Thr | Glu |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Gly | Leu | Ser | Ala | Thr | Ser | Ser | Ile | Leu | Cys | Glu | Ala | Ala | Ser | Glu | Ala |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Val | Cys | Ser | Leu | Gly | Ile | His | Gly | Val | His | Leu | Ala | Gly | Arg | Phe | Leu |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Ser | Lys | Val | Gln | Gly | Met | Arg | Ser | Arg | Val | Asn | Leu | Ala | Phe | Ala | Leu |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Leu | Val | Ser | Arg | Glu | Lys | Val | Glu | Glu | Ala | Gly | Asp | Val | Val | Ala | Ser |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Phe | Ile | His | Arg | Ile | Glu | Pro | Cys | Arg | Ala | Ile | Glu | Gln | Phe | Leu | Cys |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Glu | Asp | Gln | Lys | Ile | Phe | Val | Ala | Ser | Ser | Pro | Leu | Gln | Val | Glu | Ile |
| 385 | | | | | 3 | | | | | | | | | | |

Leu Thr Ile Leu Glu Ala Ile Ala Tyr Ser Glu Asn Arg Ile Ala Thr
 500 505 510
 Cys Phe Leu Arg Glu Arg Cys Leu Gln Glu Ala Ala Ser Leu Gln Ser
 515 520 525
 Ala Ala Ala Gly Ala Val Phe Ala Leu Phe Lys
 530 535

<210> 571
 <211> 104
 <212> PRT
 <213> C. Trachomatis D serovar

<400> 571
 Met Gln Thr Ser Arg Ile Ser Ser Phe Phe Arg Gly Leu Val His Leu
 1 5 10 15
 Tyr Arg Trp Ala Ile Ser Pro Phe Leu Gly Ala Pro Cys Arg Phe Phe
 20 25 30
 Pro Thr Cys Ser Glu Tyr Ala Leu Val Ala Leu Lys Lys His Pro Leu
 35 40 45
 Arg Lys Ser Leu Phe Leu Ile Ala Lys Arg Leu Leu Lys Cys Gly Pro
 50 55 60
 Trp Cys Ile Gly Gly Ile Asp Leu Val Pro Arg Thr Ser Val Glu Glu
 65 70 75 80
 Tyr Leu Ser Ser Pro Thr Pro Leu Ala Glu Ser Pro Asp Asp Arg Thr
 85 90 95
 Val Pro His Thr Gln Glu Thr Ser
 100

<210> 572
 <211> 336
 <212> PRT
 <213> C. Trachomatis D serovar

<400> 572
 Met Gln Leu Phe Phe Gly Arg Phe Tyr Glu Val Ala Cys Ile Val Ala
 1 5 10 15
 Ser Ile Leu Arg Glu Arg Asp Val Gly Val Phe Met Gly Ile Glu Gly
 20 25 30
 Arg Gly Ser Gly Ala Met Gln Ser Lys Lys Thr Ile Lys Trp Leu Lys
 35 40 45
 Gln Ala Leu Val Leu Ser Ser Ile Val Asn Ile Leu Leu Leu Leu
 50 55 60
 Ile Tyr Ser Thr Val Phe Arg Lys Asp Ile Tyr Lys Leu Arg Val Phe
 65 70 75 80
 Pro Gly Asn Leu Ile Ala Lys Ser Ser Arg Ile Gly Lys Ile Pro Glu
 85 90 95
 Asp Ile Leu Glu Arg Leu Glu Asn Ala Ser Phe Ala Asp Leu Leu Ala
 100 105 110
 Leu Leu Gln Glu Glu Arg Met Val Phe Gly His Pro Leu Lys Ser Trp
 115 120 125
 Ala Leu Gly Val Ser Ile Gln Lys Tyr Phe Val Asp Ile Ala Pro Met
 130 135 140
 Leu Thr His Pro Leu Thr Phe Ile Arg Leu Lys Ser Pro Glu Arg Thr
 145 150 155 160
 Trp Leu Leu Pro Asp Ile Asn Asp Gln Glu Phe Thr Arg Ile Cys Gln
 165 170 175
 Tyr Leu Leu Thr Glu Arg Phe Pro Phe Ser Ser Arg Gly Phe Phe Arg

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180 185 190
 Ile Met Val Arg Asp Cys Glu Ala Gly Met Val Asp Glu Asp Val Leu
 195 200 205
 Tyr Arg Phe Cys His Leu Pro Glu Phe Leu Tyr Val Arg Ser Leu Leu
 210 215 220
 Phe Gly Ala Glu Ile Glu Ala Ala Ser Val Ala Ser Leu Ala Arg Met
 225 230 235 240
 Ile Ile Gln Gly Gly Glu Asp Leu Phe Phe Ser Leu Cys Cys Leu Glu
 245 250 255
 Asn Arg Gln Thr Ala Ile Ser Asp His Gln Arg Arg Cys Phe Leu Lys
 260 265 270
 Ala Tyr Val Asp Arg Gln Glu Pro Leu Ala Ala Leu Leu Leu Leu Val
 275 280 285
 His Asp Ala Asp Trp Val Leu His Glu Phe Ser Asp Ser Asp Leu Gln
 290 295 300
 Ser Phe Ile Gln Leu Leu Pro Arg Glu Ala His Tyr Thr Lys Lys Phe
 305 310 315 320
 Leu Gly Cys Val Ala Gln Ser Cys Arg Leu Gly Ile Leu Leu Glu Gly
 325 330 335

<210> 573
 <211> 426
 <212> PRT
 <213> C. Trachomatis D serovar

<400> 573
 Met Tyr Val Arg Ser Ile Phe Phe Ser Ile Ile Ala Phe Leu Thr Val
 1 5 10 15
 Gly Cys Ser Phe Ser Pro Pro Glu Ser Gly Leu Ile Ile Ala Ile His
 20 25 30
 Asp Asp Pro Arg Ser Leu Ser Pro Glu Lys Gly Glu Asn Ala Phe His
 35 40 45
 Phe Ser Leu Ser Lys Ala Leu Phe Ala Thr Leu Phe Arg Glu Glu Leu
 50 55 60
 Ser Gly Leu Thr Pro Ala Leu Val Ser Ser Tyr Gln Val Ser Glu Asp
 65 70 75 80
 Gly Arg Phe Tyr Arg Phe Cys Ile Arg Lys Asp Ala Lys Trp Ser Asp
 85 90 95
 Gly Ser Leu Leu Leu Ala Glu Asp Val Ile Ala Ala Trp Glu His Thr
 100 105 110
 Lys Gln Ala Gly Arg Tyr Ser Leu Phe Glu Lys Leu Ser Phe Arg
 115 120 125
 Ala Ser Ser Ser Ser Glu Ile Leu Ile Glu Leu Lys Glu Pro Glu Pro
 130 135 140
 Gln Leu Leu Ala Ile Leu Ala Ser Pro Phe Phe Ala Val Tyr Arg Pro
 145 150 155 160
 Glu Asn Pro Phe Leu Ser Ser Gly Pro Phe Met Pro Lys Thr Tyr Val
 165 170 175
 Gln Gly Gln Thr Leu Val Leu Gln Lys Asn Pro Tyr Tyr Tyr Asp His
 180 185 190
 Ala His Val Glu Leu His Ser Ile Asp Phe Arg Ile Ile Pro Asn Ile
 195 200 205
 Tyr Thr Ala Leu His Leu Leu Arg Arg Gly Asp Val Asp Trp Val Gly
 210 215 220
 Gln Pro Trp His Gln Gly Ile Pro Phe Glu Leu Arg Thr Thr Ser Ala
 225 230 235 240
 Leu Tyr Thr His Tyr Ser Val Asp Gly Thr Phe Trp Leu Ile Leu Asn

245 250 255
 Pro Lys Asp Pro Val Leu Ser Ser Leu Ser Asn Arg Gln Arg Leu Ile
 260 265 270
 Ala Ala Val Gln Lys Glu Lys Leu Val Lys Gln Ala Leu Gly Thr Gln
 275 280 285
 Tyr Arg Val Ala Glu Ser Ser Pro Ser Pro Glu Gly Ile Ile Ala His
 290 295 300
 Gln Glu Ala Ser Thr Pro Phe Pro Gly Lys Ile Thr Leu Ile Tyr Pro
 305 310 315 320
 Asn Asn Ile Thr Arg Cys Gln Arg Leu Ala Glu Val Leu Gln Glu Gln
 325 330 335
 Cys Arg Asp Ala Gly Ile Gln Leu Thr Leu Glu Gly Leu Glu Tyr His
 340 345 350
 Val Phe Val Gln Lys Arg Ala Thr Gln Asp Phe Ser Val Ser Thr Ala
 355 360 365
 Thr Ser Ile Ala Phe His Pro Leu Ala Lys Ser Lys Phe Asp Gln Thr
 370 375 380
 Ala Leu Asp Asn Phe Thr Cys Leu Pro Leu Tyr His Ile Glu Tyr Asp
 385 390 395 400
 Tyr Ile Leu Ser Arg Pro Leu Asp Gln Ile Val His Tyr Pro Ser Gly
 405 410 415
 Ser Val Asp Leu Thr Tyr Ala His Phe His
 420 425

<210> 574
 <211> 605
 <212> PRT
 <213> C. Trachomatis D serovar

<400> 574
 Met Gln Asn Ile Leu Arg Thr Ser Ser Cys Arg Tyr Met Phe Leu Leu
 1 5 10 15
 Gly Ile Arg Ser Val Trp Asn Arg Val Ala Val Val Asn Asn Phe Arg
 20 25 30
 Gly Ser Ser Trp Lys Ile Val Ala Ile Pro Ser Cys Ile Leu Phe Thr
 35 40 45
 Leu Ile Phe His Leu Pro Arg Trp Leu Ile Asp Phe Gly Val Cys Thr
 50 55 60
 Asn Leu Ala Cys Ser Leu Ser Ile Ile Phe Trp Val Phe Ser Leu Arg
 65 70 75 80
 Ser Ser Ala Ser Ala Arg Ile Phe Pro Ser Leu Leu Leu Tyr Leu Cys
 85 90 95
 Leu Leu Arg Leu Gly Leu Asn Leu Ala Ser Thr Arg Trp Ile Leu Ser
 100 105 110
 Ser Gly Trp Ala Ser Pro Leu Ile Phe Ala Leu Gly Asn Phe Phe Ser
 115 120 125
 Leu Gly Ser Ile Pro Val Ala Leu Thr Val Cys Leu Leu Phe Leu
 130 135 140
 Val Asn Phe Leu Val Ile Thr Lys Gly Ala Glu Arg Ile Ala Glu Val
 145 150 155 160
 Arg Ala Arg Phe Ser Leu Glu Ala Leu Pro Gly Lys Gln Met Ser Leu
 165 170 175
 Asp Ala Asp Ile Ala Ala Gly Arg Ile Gly Tyr Ser Arg Ala Ser Val
 180 185 190
 Lys Lys Ser Ser Leu Leu Glu Glu Ser Asp Tyr Phe Ser Ala Met Glu
 195 200 205
 Gly Val Phe Arg Phe Val Lys Gly Asp Ala Ile Met Ser Trp Val Leu

210 215 220
 Leu Gly Val Asn Ile Leu Ala Ala Leu Phe Leu Gly Arg Ala Thr His
 225 230 235 240
 Val Gly Asp Leu Trp Leu Thr Val Leu Gly Asp Ala Leu Val Ser Gln
 245 250 255
 Ile Pro Ala Leu Leu Thr Ser Cys Ala Ala Ala Thr Leu Ile Ala Lys
 260 265 270
 Val Gly Glu Lys Glu Ser Leu Ala Gln His Leu Leu Asp Tyr Tyr Glu
 275 280 285
 Gln Ser Arg Gln Ser Phe Leu Phe Ile Ala Leu Ile Leu Cys Gly Met
 290 295 300
 Ala Cys Ile Pro Gly Ala Pro Lys Ala Leu Ile Leu Gly Phe Ser Val
 305 310 315 320
 Leu Leu Phe Leu Gly Tyr Lys Asn Pro Ser Ser Gly Glu Thr Leu Leu
 325 330 335
 Phe Gln Lys Glu Arg Val Glu Phe Val Leu Pro Asp Glu Gly Val Gly
 340 345 350
 Asn Pro Ala Asn Leu Tyr Lys Asp Ala Arg Asn Gln Ile Tyr Gln Glu
 355 360 365
 Leu Gly Val Val Phe Pro Glu Ala Ile Val Val Arg His Val Thr Gly
 370 375 380
 Ser Ser Pro Arg Leu Ile Phe Ser Gly Gln Glu Val Ala Leu Arg Glu
 385 390 395 400
 Leu Ser Cys Pro Ala Ile Leu Glu Ser Ile Arg Gln Leu Ala Pro Glu
 405 410 415
 Thr Ile Ser Glu Arg Phe Val Thr Arg Leu Val Asp Glu Phe Arg Glu
 420 425 430
 His Ala Phe Leu Ser Ile Glu Glu Ile Leu Pro Leu Lys Ile Ser Glu
 435 440 445
 Asn Ser Leu Ile Phe Leu Leu Arg Ala Leu Val Arg Glu Arg Val Ser
 450 455 460
 Leu His Leu Phe Pro Lys Ile Leu Glu Ala Ile Asp Val Tyr Gly Ser
 465 470 475 480
 Gln Pro Lys Asn Ser Gln Glu Leu Val Glu Cys Val Arg Lys Tyr Leu
 485 490 495
 Gly Lys Gln Ile Gly Leu Ser Leu Trp Asn Arg Gln Asp Val Leu Glu
 500 505 510
 Val Ile Thr Ile Asp Ser Leu Val Glu Gln Phe Val Arg Asp Ser Gln
 515 520 525
 Glu Lys Val Val Leu Asp Leu Asn Glu Lys Val Val Ala Gln Val Lys
 530 535 540
 His Leu Leu Arg Val Gly Glu Gly Asn Phe Arg Ala Ile Val Thr Gly
 545 550 555 560
 Ser Glu Thr Arg Lys Glu Leu Lys Arg Ile Val Asp Pro Tyr Phe Pro
 565 570 575
 Asp Leu Leu Val Leu Ala His Ser Glu Leu Pro Glu Glu Ile Pro Ile
 580 585 590
 Thr Leu Leu Gly Ala Val Ser Asp Glu Val Leu Leu Ser
 595 600 605

<210> 575
 <211> 173
 <212> PRT
 <213> C. Trachomatis D serovar

<400> 575
 Met Lys Lys Phe Leu Leu Leu Ser Leu Met Ser Leu Ser Ser Leu Pro

1 5 10 15
 Thr Phe Ala Ala Asn Ser Thr Gly Thr Ile Gly Ile Val Asn Leu Arg
 20 25 30
 Arg Cys Leu Glu Glu Ser Ala Leu Gly Lys Lys Glu Ser Ala Glu Phe
 35 40 45
 Glu Lys Met Lys Asn Gln Phe Ser Asn Ser Met Gly Lys Met Glu Glu
 50 55 60
 Glu Leu Ser Ser Ile Tyr Ser Lys Leu Gln Asp Asp Tyr Met Glu
 65 70 75 80
 Gly Leu Ser Glu Thr Ala Ala Ala Glu Leu Arg Lys Lys Phe Glu Asp
 85 90 95
 Leu Ser Ala Glu Tyr Asn Thr Ala Gln Gly Gln Tyr Tyr Gln Ile Leu
 100 105 110
 Asn Gln Ser Asn Leu Lys Arg Met Gln Lys Ile Met Glu Glu Val Lys
 115 120 125
 Lys Ala Ser Glu Thr Val Arg Ile Gln Glu Gly Leu Ser Val Leu Leu
 130 135 140
 Asn Glu Asp Ile Val Leu Ser Ile Asp Ser Ser Ala Asp Lys Thr Asp
 145 150 155 160
 Ala Val Ile Lys Val Leu Asp Asp Ser Phe Gln Asn Asn
 165 170

<210> 576

<211> 354

<212> PRT

<213> C. Trachomatis D serovar

<400> 576

Met Ser Gln Ser Thr Tyr Ser Leu Glu Gln Leu Ala Asp Phe Leu Lys
 1 5 10 15
 Val Glu Phe Gln Gly Asn Gly Ala Thr Leu Leu Ser Gly Val Glu Glu
 20 25 30
 Ile Glu Glu Ala Lys Thr Ala His Ile Thr Phe Leu Asp Asn Glu Lys
 35 40 45
 Tyr Ala Lys His Leu Lys Ser Ser Glu Ala Gly Ala Ile Ile Ile Ser
 50 55 60
 Arg Thr Gln Phe Gln Lys Tyr Arg Asp Leu Asn Lys Asn Phe Leu Ile
 65 70 75 80
 Thr Ser Glu Ser Pro Ser Leu Val Phe Gln Lys Cys Leu Glu Leu Phe
 85 90 95
 Ile Thr Pro Val Asp Ser Gly Phe Pro Gly Ile His Pro Thr Ala Val
 100 105 110
 Ile His Pro Thr Ala Ile Ile Glu Asp His Val Cys Ile Glu Pro Tyr
 115 120 125
 Ala Val Val Cys Gln His Ala His Val Gly Ser Ala Cys His Ile Gly
 130 135 140
 Ser Gly Ser Val Ile Gly Ala Tyr Ser Thr Val Gly Glu His Ser Tyr
 145 150 155 160
 Ile His Pro Arg Val Val Ile Arg Glu Arg Val Ser Ile Gly Lys Arg
 165 170 175
 Val Ile Ile Gln Pro Gly Ala Val Ile Gly Ser Cys Gly Phe Gly Tyr
 180 185 190
 Val Thr Ser Ala Phe Gly Gln His Lys His Leu Lys His Leu Gly Lys
 195 200 205
 Val Ile Ile Glu Asp Asp Val Glu Ile Gly Ala Asn Thr Thr Ile Asp
 210 215 220
 Arg Gly Arg Phe Lys His Ser Val Val Arg Glu Gly Ser Lys Ile Asp

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225 230 235 240
 Asn Leu Val Gln Ile Ala His Gln Val Glu Val Gly Gln His Ser Met
 245 250 255
 Ile Val Ala Gln Ala Gly Ile Ala Gly Ser Thr Lys Ile Gly Asn His
 260 265 270
 Val Ile Ile Gly Gly Gln Ala Gly Ile Thr Gly His Ile Cys Ile Ala
 275 280 285
 Asp His Val Ile Met Met Ala Gln Thr Gly Val Thr Lys Ser Ile Thr
 290 295 300
 Ser Pro Gly Ile Tyr Gly Gly Ala Pro Ala Arg Pro Tyr Gln Glu Ile
 305 310 315 320
 His Arg Gln Val Ala Lys Val Arg Asn Leu Pro Arg Leu Glu Glu Arg
 325 330 335
 Ile Ala Ala Leu Glu Lys Leu Val Gln Lys Leu Glu Ala Leu Ser Glu
 340 345 350
 Gln His

<210> 577
 <211> 421
 <212> PRT
 <213> C. Trachomatis D serovar

<400> 577
 Met Thr Ala Ser Gly Gly Ala Gly Gly Leu Gly Ser Thr Gln Thr Val
 1 5 10 15
 Asp Val Ala Arg Ala Gln Ala Ala Ala Thr Gln Asp Ala Gln Glu
 20 25 30
 Val Ile Gly Ser Gln Glu Ala Ser Glu Ala Ser Met Leu Lys Gly Cys
 35 40 45
 Glu Asp Leu Ile Asn Pro Ala Ala Thr Arg Ile Lys Lys Lys Gly
 50 55 60
 Glu Lys Phe Glu Ser Leu Glu Ala Arg Arg Lys Pro Thr Ala Asp Lys
 65 70 75 80
 Ala Glu Lys Lys Ser Glu Ser Thr Glu Glu Lys Gly Asp Thr Pro Leu
 85 90 95
 Glu Asp Arg Phe Thr Glu Asp Leu Ser Glu Val Ser Gly Glu Asp Phe
 100 105 110
 Arg Gly Leu Lys Asn Ser Phe Asp Asp Ser Ser Pro Asp Glu Ile
 115 120 125
 Leu Asp Ala Leu Thr Ser Lys Phe Ser Asp Pro Thr Ile Lys Asp Leu
 130 135 140
 Ala Leu Asp Tyr Leu Ile Gln Thr Ala Pro Ser Asp Gly Lys Leu Lys
 145 150 155 160
 Ser Thr Leu Ile Gln Ala Lys His Gln Leu Met Ser Gln Asn Pro Gln
 165 170 175
 Ala Ile Val Gly Arg Asn Val Leu Leu Ala Ser Glu Thr Phe Ala
 180 185 190
 Ser Arg Ala Asn Thr Ser Pro Ser Ser Leu Arg Ser Leu Tyr Phe Gln
 195 200 205
 Val Thr Ser Ser Pro Ser Asn Cys Ala Asn Leu His Gln Met Leu Ala
 210 215 220
 Ser Tyr Leu Pro Ser Glu Lys Thr Ala Val Met Glu Phe Leu Val Asn
 225 230 235 240
 Gly Met Val Ala Asp Leu Lys Ser Glu Gly Pro Ser Ile Pro Pro Ala
 245 250 255
 Lys Leu Gln Val Tyr Met Thr Glu Leu Ser Asn Leu Gln Ala Leu His

260 265 270
 Ser Val Asn Ser Phe Phe Asp Arg Asn Ile Gly Asn Leu Glu Asn Ser
 275 280 285
 Leu Lys His Glu Gly His Ala Pro Ile Pro Ser Leu Thr Thr Gly Asn
 290 295 300
 Leu Thr Lys Thr Phe Leu Gln Leu Val Glu Asp Lys Phe Pro Ser Ser
 305 310 315 320
 Ser Lys Ala Gln Lys Ala Leu Asn Glu Leu Val Gly Pro Asp Thr Gly
 325 330 335
 Pro Gln Thr Glu Val Leu Asn Leu Phe Phe Arg Ala Leu Asn Gly Cys
 340 345 350
 Ser Pro Arg Ile Phe Ser Gly Ala Glu Lys Lys Gln Gln Leu Ala Ser
 355 360 365
 Val Ile Thr Asn Thr Leu Asp Ala Ile Asn Ala Asp Asn Glu Asp Tyr
 370 375 380
 Pro Lys Pro Gly Asp Phe Pro Arg Ser Ser Phe Ser Ser Thr Pro Pro
 385 390 395 400
 His Ala Pro Val Pro Gln Ser Glu Ile Pro Thr Ser Pro Thr Ser Thr
 405 410 415
 Gln Pro Pro Ser Pro
 420

<210> 578
 <211> 231
 <212> PRT
 <213> C. Trachomatis D serovar

<400> 578
 Met Met Glu Val Phe Met Asn Phe Leu Asp Gln Leu Asp Leu Ile Ile
 1 5 10 15
 Gln Asn Lys His Met Leu Glu His Thr Phe Tyr Val Lys Trp Ser Lys
 20 25 30
 Gly Glu Leu Thr Lys Glu Gln Leu Ala Tyr Ala Lys Asp Tyr Tyr
 35 40 45
 Leu His Ile Lys Ala Phe Pro Lys Tyr Leu Ser Ala Ile His Ser Arg
 50 55 60
 Cys Asp Asp Leu Glu Ala Arg Lys Leu Leu Leu Asp Asn Leu Met Asp
 65 70 75 80
 Glu Glu Asn Gly Tyr Pro Asn His Ile Asp Leu Trp Lys Gln Phe Val
 85 90 95
 Phe Ala Leu Gly Val Thr Pro Glu Glu Leu Glu Ala His Glu Pro Ser
 100 105 110
 Glu Ala Ala Lys Ala Lys Val Ala Thr Phe Met Arg Trp Cys Thr Gly
 115 120 125
 Asp Ser Leu Ala Ala Gly Val Ala Ala Leu Tyr Ser Tyr Glu Ser Gln
 130 135 140
 Ile Pro Arg Ile Ala Arg Glu Lys Ile Arg Gly Leu Thr Glu Tyr Phe
 145 150 155 160
 Gly Phe Ser Asn Pro Glu Asp Tyr Ala Tyr Phe Thr Glu His Glu Glu
 165 170 175
 Ala Asp Val Arg His Ala Arg Glu Glu Lys Ala Leu Ile Glu Met Leu
 180 185 190
 Leu Lys Asp Asp Ala Asp Lys Val Leu Glu Ala Ser Gln Glu Val Thr
 195 200 205
 Gln Ser Leu Tyr Gly Phe Leu Asp Ser Phe Leu Asp Pro Gly Thr Cys
 210 215 220
 Cys Ser Cys His Gln Ser Tyr

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225

230

<210> 579

<211> 243

<212> PRT

<213> C. Trachomatis D serovar

<400> 579

Met Lys Ile Thr Pro Ile Lys Thr Arg Lys Val Phe Ala His Asp Ser
 1 5 10 15
 Leu Gln Glu Ile Leu Gln Glu Ala Leu Pro Pro Leu Gln Glu Arg Ser
 20 25 30
 Val Val Val Val Ser Ser Lys Ile Val Ser Leu Cys Glu Gly Ala Val
 35 40 45
 Ala Asp Ala Arg Met Cys Lys Ala Glu Leu Ile Lys Lys Glu Ala Asp
 50 55 60
 Ala Tyr Leu Phe Cys Glu Lys Ser Gly Ile Tyr Leu Thr Lys Lys Glu
 65 70 75 80
 Gly Ile Leu Ile Pro Ser Ala Gly Ile Asp Glu Ser Asn Thr Asp Gln
 85 90 95
 Pro Phe Val Leu Tyr Pro Lys Asp Ile Leu Gly Ser Cys Asn Arg Ile
 100 105 110
 Gly Glu Trp Leu Arg Asn Tyr Phe Arg Val Lys Glu Leu Gly Val Ile
 115 120 125
 Ile Thr Asp Ser His Thr Thr Pro Met Arg Arg Gly Val Leu Gly Ile
 130 135 140
 Gly Leu Cys Trp Tyr Gly Phe Ser Pro Leu His Asn Tyr Ile Gly Ser
 145 150 155 160
 Leu Asp Cys Phe Gly Arg Pro Leu Gln Met Thr Gln Ser Asn Leu Val
 165 170 175
 Asp Ala Leu Ala Val Ala Ala Val Val Cys Met Gly Glu Gly Asn Glu
 180 185 190
 Gln Thr Pro Leu Ala Val Ile Glu Gln Ala Pro Asn Met Val Tyr His
 195 200 205
 Ser His Pro Thr Ser Arg Glu Glu Tyr Cys Ser Leu Arg Ile Asp Glu
 210 215 220
 Thr Glu Asp Leu Tyr Gly Pro Phe Leu Gln Ala Val Thr Trp Ser Gln
 225 230 235 240
 Glu Lys Lys

<210> 580

<211> 383

<212> PRT

<213> C. Trachomatis D serovar

<400> 580

Met Leu Pro His Gln Gln Asn Ser Ser Ser Glu Arg Ala Arg His His
 1 5 10 15
 Glu Ser Arg Ser His Arg His Ser Ser Ser Arg His His Val Thr
 20 25 30
 Arg Ser Gln Ser Ser Ala Leu Pro Gln Leu Gln Glu Arg Pro Val Pro
 35 40 45
 His Pro Leu Ala Glu Arg Glu Leu Ile Ile Phe His Ser Val His Gln
 50 55 60
 Gln Gln Asn Asn Asn Pro Leu Arg Met Ile Cys Asp Thr Ile Arg Gln
 65 70 75 80

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<210> 581
<211> 193
<212> PRT
<213> C. Trachomatis D serovar
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| | | | | | | | | | | | | | | | |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 581 | | | | | | | | | | | | | | | |
| Met | Trp | Phe | Phe | Leu | Gly | Ser | Pro | Ser | Ala | Ile | Thr | Asn | Phe | Ser | Arg |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Val | Asp | Val | Ala | Leu | Asn | Leu | Arg | Ile | Asn | Arg | Gln | Ile | Arg | Ala | Pro |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Arg | Val | Arg | Val | Ile | Gly | Ser | Ala | Gly | Glu | Gln | Leu | Gly | Ile | Leu | Ser |
| | | | 35 | | | | 40 | | | | | 45 | | | |
| Ile | Lys | Glu | Ala | Leu | Asp | Leu | Ala | Lys | Glu | Ala | Asn | Leu | Asp | Leu | Val |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Glu | Val | Ala | Ser | Asn | Ser | Glu | Pro | Pro | Val | Cys | Lys | Ile | Met | Asp | Tyr |
| 65 | | | | 70 | | | | | | 75 | | | | 80 | |
| Gly | Lys | Tyr | Arg | Tyr | Asp | Val | Thr | Lys | Lys | Glu | Lys | Asp | Ser | Lys | Lys |
| | | | | 85 | | | | | 90 | | | | | 95 | |

Ala Gln His Gln Val Arg Ile Lys Glu Val Lys Leu Lys Pro Asn Ile
 100 105 110
 Asp Asp Asn Asp Phe Leu Thr Lys Ala Lys Gln Ala Arg Ala Phe Ile
 115 120 125
 Glu Lys Gly Asn Lys Val Lys Val Ser Cys Met Phe Arg Gly Arg Glu
 130 135 140
 Leu Ala Tyr Pro Glu His Gly Tyr Lys Val Ile Gln Arg Met Cys Gln
 145 150 155 160
 Gly Leu Glu Asp Ile Gly Phe Val Glu Ser Glu Pro Lys Leu Asn Gly
 165 170 175
 Arg Ser Leu Ile Cys Val Ile Ala Pro Gly Thr Leu Lys Thr Lys Lys
 180 185 190
 Lys

<210> 582

<211> 264

<212> PRT

<213> C. Trachomatis D serovar

<400> 582

Met Gly Asn Ser Gly Phe Tyr Leu Tyr Asn Thr Glu Asn Cys Val Phe
 1 5 10 15
 Ala Asp Asn Ile Lys Val Gly Gln Met Thr Glu Pro Leu Lys Asp Gln
 20 25 30
 Gln Ile Ile Leu Gly Thr Lys Ser Thr Pro Val Ala Ala Lys Met Thr
 35 40 45
 Ala Ser Asp Gly Ile Ser Leu Thr Val Ser Asn Asn Ser Ser Thr Asn
 50 55 60
 Ala Ser Ile Thr Ile Gly Leu Asp Ala Glu Lys Ala Tyr Gln Leu Ile
 65 70 75 80
 Leu Glu Lys Leu Gly Asn Gln Ile Leu Asp Gly Ile Ala Asp Thr Ile
 85 90 95
 Val Asp Ser Thr Val Gln Asp Ile Leu Asp Lys Ile Thr Thr Asp Pro
 100 105 110
 Ser Leu Gly Leu Leu Lys Ala Phe Asn Asn Phe Pro Ile Thr Asn Lys
 115 120 125
 Ile Gln Cys Asn Gly Leu Phe Thr Pro Ser Asn Ile Glu Thr Leu Leu
 130 135 140
 Gly Gly Thr Glu Ile Gly Lys Phe Thr Val Thr Pro Lys Ser Ser Gly
 145 150 155 160
 Ser Met Phe Leu Val Ser Ala Asp Ile Ile Ala Ser Arg Met Glu Gly
 165 170 175
 Gly Val Val Leu Ala Leu Val Arg Glu Gly Asp Ser Lys Pro Cys Ala
 180 185 190
 Ile Ser Tyr Gly Tyr Ser Ser Gly Val Pro Asn Leu Cys Ser Leu Arg
 195 200 205
 Thr Ser Ile Thr Asn Thr Gly Leu Thr Pro Thr Thr Tyr Ser Leu Arg
 210 215 220
 Val Gly Gly Leu Glu Ser Gly Val Val Trp Val Asn Ala Leu Ser Asn
 225 230 235 240
 Gly Asn Asp Ile Leu Gly Ile Thr Asn Thr Ser Asn Val Ser Phe Leu
 245 250 255
 Glu Val Ile Pro Gln Thr Asn Ala
 260

<210> 583

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<211> 1053
 <212> PRT
 <213> C. Trachomatis D serovar

<400> 583

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Phe | Thr | Arg | Ile | Val | Met | Val | Asp | Leu | Gln | Glu | Lys | Gln | Cys | Thr |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ile | Val | Lys | Arg | Asn | Gly | Met | Phe | Val | Pro | Phe | Asp | Arg | Asn | Arg | Ile |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Phe | Gln | Ala | Leu | Glu | Ala | Ala | Phe | Arg | Asp | Thr | Arg | Arg | Ile | Asp | Asp |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| His | Met | Pro | Leu | Pro | Glu | Asp | Leu | Glu | Ser | Ser | Ile | Arg | Ser | Ile | Thr |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| His | Gln | Val | Val | Lys | Glu | Val | Val | Gln | Lys | Ile | Thr | Asp | Gly | Gln | Val |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Val | Thr | Val | Glu | Arg | Ile | Gln | Asp | Met | Val | Glu | Ser | Gln | Leu | Tyr | Val |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Asn | Gly | Leu | Gln | Asp | Val | Ala | Arg | Asp | Tyr | Ile | Val | Tyr | Arg | Asp | Asp |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Arg | Lys | Ala | His | Arg | Lys | Lys | Ser | Trp | Gln | Ser | Leu | Ser | Val | Val | Arg |
| | | 115 | | | | | 120 | | | | | | 125 | | |
| Arg | Cys | Gly | Thr | Val | Val | His | Phe | Asn | Pro | Met | Lys | Ile | Ser | Ala | Ala |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Leu | Glu | Lys | Ala | Phe | Arg | Ala | Thr | Asp | Lys | Thr | Glu | Gly | Met | Thr | Pro |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ser | Ser | Val | Arg | Glu | Glu | Ile | Asn | Ala | Leu | Thr | Gln | Asn | Ile | Val | Ala |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Glu | Ile | Glu | Glu | Cys | Cys | Pro | Gln | Gln | Asp | Arg | Arg | Ile | Asp | Ile | Glu |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Lys | Ile | Gln | Asp | Ile | Val | Glu | Gln | Gln | Leu | Met | Val | Val | Gly | His | Tyr |
| | 195 | | | | | | 200 | | | | | 205 | | | |
| Ala | Val | Ala | Lys | Asn | Tyr | Ile | Leu | Tyr | Arg | Glu | Ala | Arg | Ala | Arg | Val |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Arg | Asp | Asn | Arg | Glu | Glu | Asp | Gly | Ser | Thr | Glu | Lys | Thr | Ile | Ala | Glu |
| 225 | | | | 230 | | | | | | 235 | | | | | 240 |
| Glu | Ala | Val | Glu | Val | Leu | Ser | Lys | Asp | Gly | Ser | Thr | Tyr | Thr | Met | Thr |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| His | Ser | Gln | Leu | Leu | Ala | His | Leu | Ala | Arg | Ala | Cys | Ser | Arg | Phe | Pro |
| | | | 260 | | | | 265 | | | | | | 270 | | |
| Glu | Thr | Thr | Asp | Ala | Ala | Leu | Leu | Thr | Asp | Met | Ala | Phe | Ala | Asn | Phe |
| | 275 | | | | | | 280 | | | | | 285 | | | |
| Tyr | Ser | Gly | Ile | Lys | Glu | Ser | Glu | Val | Val | Leu | Ala | Cys | Ile | Met | Ala |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Ala | Arg | Ala | Asn | Ile | Glu | Lys | Glu | Pro | Asp | Tyr | Ala | Phe | Val | Ala | Ala |
| 305 | | | | 310 | | | | | | 315 | | | | | 320 |
| Glu | Leu | Leu | Leu | Asp | Val | Val | Tyr | Lys | Glu | Ala | Leu | Gly | Lys | Ser | Lys |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Tyr | Ala | Glu | Asp | Leu | Glu | Gln | Ala | His | Arg | Asp | His | Phe | Lys | Arg | Tyr |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Ile | Ala | Glu | Gly | Asp | Thr | Tyr | Arg | Leu | Asn | Ala | Glu | Leu | Lys | His | Leu |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Phe | Asp | Leu | Asp | Ala | Leu | Ala | Asp | Ala | Met | Asp | Leu | Ser | Arg | Asp | Leu |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Gln | Phe | Ser | Tyr | Met | Gly | Ile | Gln | Asn | Leu | Tyr | Asp | Arg | Tyr | Phe | Asn |
| 385 | | | | 390 | | | | | | 395 | | | | | 400 |
| His | His | Glu | Gly | Cys | Arg | Leu | Glu | Thr | Pro | Gln | Ile | Phe | Trp | Met | Arg |
| | | | | 405 | | | | | 410 | | | | | 415 | |

094133 0401

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Ala | Met | Gly | Leu | Ala | Leu | Asn | Glu | Gln | Asp | Lys | Thr | Ser | Trp | Ala |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Ile | Thr | Phe | Tyr | Asn | Leu | Leu | Ser | Thr | Phe | Arg | Tyr | Thr | Pro | Ala | Thr |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Pro | Thr | Leu | Phe | Asn | Ser | Gly | Met | Arg | His | Ser | Gln | Leu | Ser | Ser | Cys |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Tyr | Leu | Ser | Thr | Val | Gln | Asp | Asn | Leu | Val | Asn | Ile | Tyr | Lys | Val | Ile |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Ala | Asp | Asn | Ala | Met | Leu | Ser | Lys | Trp | Ala | Gly | Gly | Ile | Gly | Asn | Asp |
| | | | 485 | | | | | | 490 | | | | | 495 | |
| Trp | Thr | Ala | Ile | Arg | Ala | Thr | Gly | Ala | Leu | Ile | Lys | Gly | Thr | Asn | Gly |
| | | 500 | | | | | 505 | | | | | | 510 | | |
| Arg | Ser | Gln | Gly | Val | Ile | Pro | Phe | Ile | Lys | Val | Thr | Asn | Asp | Thr | Ala |
| | 515 | | | | | | 520 | | | | | 525 | | | |
| Val | Ala | Val | Asn | Gln | Gly | Gly | Lys | Arg | Lys | Gly | Ala | Val | Cys | Val | Tyr |
| | 530 | | | | | 535 | | | | | 540 | | | | |
| Leu | Glu | Val | Trp | His | Leu | Asp | Tyr | Glu | Asp | Phe | Leu | Glu | Leu | Arg | Lys |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 |
| Asn | Thr | Gly | Asp | Glu | Arg | Arg | Arg | Ala | His | Asp | Val | Asn | Ile | Ala | Ser |
| | | | 565 | | | | | | 570 | | | | | 575 | |
| Trp | Ile | Pro | Asp | Leu | Phe | Phe | Lys | Arg | Leu | Gln | Gln | Lys | Gly | Thr | Trp |
| | | 580 | | | | | | 585 | | | | | 590 | | |
| Thr | Leu | Phe | Ser | Pro | Asp | Asp | Val | Pro | Gly | Leu | His | Asp | Ala | Tyr | Gly |
| | | 595 | | | | | 600 | | | | | 605 | | | |
| Glu | Glu | Phe | Glu | Arg | Leu | Tyr | Glu | Glu | Tyr | Glu | Arg | Lys | Val | Asp | Thr |
| | 610 | | | | | 615 | | | | | 620 | | | | |
| Gly | Glu | Ile | Arg | Leu | Phe | Lys | Lys | Val | Glu | Ala | Glu | Asp | Leu | Trp | Arg |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 |
| Lys | Met | Leu | Ser | Met | Leu | Phe | Glu | Thr | Gly | His | Pro | Trp | Met | Thr | Phe |
| | | | 645 | | | | | | 650 | | | | | 655 | |
| Lys | Asp | Pro | Ser | Asn | Ile | Arg | Ser | Ala | Gln | Asp | His | Lys | Gly | Val | Val |
| | | 660 | | | | | | 665 | | | | | 670 | | |
| Arg | Cys | Ser | Asn | Leu | Cys | Thr | Glu | Ile | Leu | Leu | Asn | Cys | Ser | Glu | Thr |
| | | 675 | | | | | 680 | | | | | 685 | | | |
| Glu | Thr | Ala | Val | Cys | Asn | Leu | Gly | Ser | Ile | Asn | Leu | Val | Gln | His | Ile |
| | 690 | | | | | 695 | | | | | 700 | | | | |
| Val | Gly | Asp | Gly | Leu | Asp | Glu | Glu | Lys | Leu | Ser | Glu | Thr | Ile | Ser | Ile |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 |
| Ala | Val | Arg | Met | Leu | Asp | Asn | Val | Ile | Asp | Ile | Asn | Phe | Tyr | Pro | Thr |
| | | | 725 | | | | | | 730 | | | | | 735 | |
| Lys | Glu | Ala | Lys | Glu | Ala | Asn | Phe | Ala | His | Arg | Ala | Ile | Gly | Leu | Gly |
| | | 740 | | | | | | 745 | | | | | 750 | | |
| Val | Met | Gly | Phe | Gln | Asp | Ala | Leu | Tyr | Lys | Leu | Asp | Ile | Ser | Tyr | Ala |
| | | 755 | | | | | 760 | | | | | 765 | | | |
| Ser | Gln | Glu | Ala | Val | Glu | Phe | Ala | Asp | Tyr | Ser | Ser | Glu | Leu | Ile | Ser |
| | 770 | | | | | 775 | | | | | 780 | | | | |
| Tyr | Tyr | Ala | Ile | Gln | Ala | Ser | Cys | Leu | Leu | Ala | Lys | Glu | Arg | Gly | Thr |
| 785 | | | | | 790 | | | | | 795 | | | | | 800 |
| Tyr | Ser | Ser | Tyr | Lys | Gly | Ser | Lys | Trp | Asp | Arg | Gly | Leu | Leu | Pro | Ile |
| | | | 805 | | | | | | 810 | | | | | 815 | |
| Asp | Thr | Ile | Gln | Leu | Leu | Ala | Asn | Tyr | Arg | Gly | Glu | Ala | Asn | Leu | Gln |
| | | 820 | | | | | | 825 | | | | | 830 | | |
| Met | Asp | Thr | Ser | Ser | Arg | Lys | Asp | Trp | Glu | Pro | Ile | Arg | Ser | Leu | Val |
| | 835 | | | | | | 840 | | | | | 845 | | | |
| Lys | Glu | His | Gly | Met | Arg | His | Cys | Gln | Leu | Met | Ala | Ile | Ala | Pro | Thr |
| | 850 | | | | | 855 | | | | | 860 | | | | |
| Ala | Thr | Ile | Ser | Asn | Ile | Ile | Gly | Val | Thr | Gln | Ser | Ile | Glu | Pro | Thr |

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<210> 584
<211> 346
<212> PRT
<213> C. Trachomatis D serovar
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| | | | | | | | | | | | | | | | |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-----------|-----|------------|
| <400> 584 | | | | | | | | | | | | | | | |
| Met 1 | Gln | Ala | Asp | Ile 5 | Leu | Asp | Gly | Lys | Gln 10 | Lys | Arg | Val | Asn 15 | Leu | Asn |
| Ser | Lys | Arg | Leu 20 | Val | Asn | Cys | Asn | Gln 25 | Val | Asp | Val | Asn 30 | Gln | Leu | Val |
| Pro | Ile | Lys 35 | Tyr | Lys | Trp | Ala | Trp 40 | Glu | His | Tyr | Leu 45 | Asn | Gly | Cys | Ala |
| Asn | Asn 50 | Trp | Leu | Pro | Thr | Glu 55 | Ile | Pro | Met | Gly | Lys 60 | Asp | Ile | Glu | Leu |
| Trp 65 | Lys | Ser | Asp | Arg | Leu 70 | Ser | Glu | Asp | Glu | Arg 75 | Arg | Val | Ile | Leu | Leu 80 |
| Asn | Leu | Gly | Phe | Phe 85 | Ser | Thr | Ala | Glu | Ser 90 | Leu | Val | Gly | Asn 95 | Asn | Ile |
| Val | Leu | Ala | Ile 100 | Phe | Lys | His | Val | Thr 105 | Asn | Pro | Glu | Ala 110 | Arg | Gln | Tyr |
| Leu | Leu | Arg 115 | Gln | Ala | Phe | Glu | Glu 120 | Ala | Val | His | Thr 125 | His | Thr | Phe | Leu |
| Tyr | Ile 130 | Cys | Glu | Ser | Leu | Gly 135 | Leu | Asp | Glu | Lys | Glu 140 | Ile | Phe | Asn | Ala |
| Tyr 145 | Asn | Glu | Arg | Ala | Ala 150 | Ile | Lys | Ala | Lys | Asp 155 | Asp | Phe | Gln | Met | Glu 160 |
| Ile | Thr | Gly | Lys | Val 165 | Leu | Asp | Pro | Asn | Phe 170 | Arg | Thr | Asp | Ser | Val | Glu |
| Gly | Leu | Gln | Glu 180 | Phe | Val | Lys | Asn | Leu 185 | Val | Gly | Tyr | Tyr 190 | Ile | Ile | Met |
| Glu | Gly | Ile 195 | Phe | Phe | Tyr | Ser | Gly 200 | Phe | Val | Met | Ile | Leu 205 | Ser | Phe | His |
| Arg | Gln | Asn | Lys | Met | Ile | Gly | Ile | Gly | Glu | Gln | Tyr | Gln | Tyr | Ile | Leu |

| | | | | |
|-------------------------|---|-----|-----|-----|
| 210 | | 215 | | 220 |
| Arg Asp Glu Thr Ile His | Leu Asn Phe Gly Ile Asp Leu Ile Asn Gly | | | |
| 225 | 230 | 235 | 240 | |
| Ile Lys Glu Glu Asn Pro | Glu Ile Trp Thr Pro Glu Leu Gln Gln Glu | | | |
| | 245 | 250 | 255 | |
| Ile Val Glu Leu Ile Lys | Arg Ala Val Asp Leu Glu Ile Glu Tyr Ala | | | |
| | 260 | 265 | 270 | |
| Gln Asp Cys Leu Pro Arg | Gly Ile Leu Gly Leu Arg Ala Ser Met Phe | | | |
| | 275 | 280 | 285 | |
| Ile Asp Tyr Val Gln His | Ile Ala Asp Arg Arg Leu Glu Arg Ile Gly | | | |
| | 290 | 295 | 300 | |
| Leu Lys Pro Ile Tyr His | Thr Lys Asn Pro Phe Pro Trp Met Ser Glu | | | |
| 305 | 310 | 315 | 320 | |
| Thr Ile Asp Leu Asn Lys | Glu Lys Asn Phe Phe Glu Thr Arg Val Ile | | | |
| | 325 | 330 | 335 | |
| Glu Tyr Gln His Ala Ala | Ser Leu Thr Trp | | | |
| | 340 | 345 | | |

<210> 585
 <211> 326
 <212> PRT
 <213> C. Trachomatis D serovar

| |
|---|
| <400> 585 |
| Met Ser Phe Phe His Thr Arg Lys Tyr Lys Leu Ile Leu Arg Gly Leu |
| 1 5 10 15 |
| Leu Cys Leu Ala Gly Cys Phe Leu Met Asn Ser Cys Ser Ser Ser Arg |
| 20 25 30 |
| Gly Asn Gln Pro Ala Asp Glu Ser Ile Tyr Val Leu Ser Met Asn Arg |
| 35 40 45 |
| Met Ile Cys Asp Cys Val Ser Arg Ile Thr Gly Asp Arg Val Lys Asn |
| 50 55 60 |
| Ile Val Leu Ile Asp Gly Ala Ile Asp Pro His Ser Tyr Glu Met Val |
| 65 70 75 80 |
| Lys Gly Asp Glu Asp Arg Met Ala Met Ser Gln Leu Ile Phe Cys Asn |
| 85 90 95 |
| Gly Leu Gly Leu Glu His Ser Ala Ser Leu Arg Lys His Leu Glu Gly |
| 100 105 110 |
| Asn Pro Lys Val Val Asp Leu Gly Gln Arg Leu Leu Asn Lys Asn Cys |
| 115 120 125 |
| Phe Asp Leu Leu Ser Glu Glu Gly Phe Pro Asp Pro His Ile Trp Thr |
| 130 135 140 |
| Asp Met Arg Val Trp Gly Ala Ala Val Lys Glu Met Ala Ala Ala Leu |
| 145 150 155 160 |
| Ile Gln Gln Phe Pro Gln Tyr Glu Glu Asp Phe Gln Lys Asn Ala Asp |
| 165 170 175 |
| Gln Ile Leu Ser Glu Met Glu Glu Leu Asp Arg Trp Ala Ala Arg Ser |
| 180 185 190 |
| Leu Ser Thr Ile Pro Glu Lys Asn Arg Tyr Leu Val Thr Gly His Asn |
| 195 200 205 |
| Ala Phe Ser Tyr Phe Thr Arg Arg Tyr Leu Ser Ser Asp Ala Glu Arg |
| 210 215 220 |
| Val Ser Gly Glu Trp Arg Ser Arg Cys Ile Ser Pro Glu Gly Leu Ser |
| 225 230 235 240 |
| Pro Glu Ala Gln Ile Ser Ile Arg Asp Ile Met Arg Val Val Glu Tyr |
| 245 250 255 |
| Ile Ser Ala Asn Asp Val Glu Val Val Phe Leu Glu Asp Thr Leu Asn |

260 265 270
 Gln Asp Ala Leu Arg Lys Ile Val Ser Cys Ser Lys Ser Gly Gln Lys
 275 280 285
 Ile Arg Leu Ala Lys Ser Pro Leu Tyr Ser Asp Asn Val Cys Asp Asn
 290 295 300
 Tyr Phe Ser Thr Phe Gln His Asn Val Arg Thr Ile Thr Glu Glu Leu
 305 310 315 320
 Gly Gly Thr Val Leu Glu
 325

<210> 586
 <211> 102
 <212> PRT
 <213> C. Trachomatis D serovar

<400> 586
 Met Gln Asn Lys Arg Lys Val Arg Asp Asp Phe Ile Lys Ile Val Lys
 1 5 10 15
 Asp Val Lys Lys Asp Phe Pro Glu Leu Asp Leu Lys Ile Arg Val Asn
 20 25 30
 Lys Glu Lys Val Thr Phe Leu Asn Ser Pro Leu Glu Leu Tyr His Lys
 35 40 45
 Ser Val Ser Leu Ile Leu Gly Leu Leu Gln Gln Ile Glu Asn Ser Leu
 50 55 60
 Gly Leu Phe Pro Asp Ser Pro Val Leu Glu Lys Leu Glu Asp Asn Ser
 65 70 75 80
 Leu Lys Leu Lys Lys Ala Leu Ile Met Leu Ile Leu Ser Arg Lys Asp
 85 90 95
 Met Phe Ser Lys Ala Glu
 100

<210> 587
 <211> 243
 <212> PRT
 <213> C. Trachomatis D serovar

<400> 587
 Val Gly Cys Asn Leu Ala Gln Phe Leu Gly Lys Lys Val Leu Leu Ala
 1 5 10 15
 Asp Leu Asp Pro Gln Ser Asn Leu Ser Ser Gly Leu Gly Ala Ser Val
 20 25 30
 Arg Asn Asn Gln Lys Gly Leu His Asp Ile Val Tyr Lys Ser Asn Asp
 35 40 45
 Leu Lys Ser Ile Ile Cys Glu Thr Lys Lys Asp Ser Val Asp Leu Ile
 50 55 60
 Pro Ala Ser Phe Leu Ser Glu Gln Phe Arg Glu Leu Asp Ile His Arg
 65 70 75 80
 Gly Pro Ser Asn Asn Leu Lys Leu Phe Leu Asn Glu Tyr Cys Ala Pro
 85 90 95
 Phe Tyr Asp Ile Cys Ile Ile Asp Thr Pro Pro Ser Leu Gly Gly Leu
 100 105 110
 Thr Lys Glu Ala Phe Val Ala Gly Asp Lys Leu Ile Ala Cys Leu Thr
 115 120 125
 Pro Glu Pro Phe Ser Ile Leu Gly Leu Gln Lys Ile Arg Glu Phe Leu
 130 135 140
 Ser Ser Val Gly Lys Pro Glu Glu Glu His Ile Leu Gly Ile Ala Leu
 145 150 155 160

Ser Phe Trp Asp Asp Arg Asn Ser Thr Asn Gln Met Tyr Ile Asp Ile
 165 170 175
 Ile Glu Ser Ile Tyr Lys Asn Lys Leu Phe Ser Thr Lys Ile Arg Arg
 180 185 190
 Asp Ile Ser Leu Ser Arg Ser Leu Leu Lys Glu Asp Ser Val Ala Asn
 195 200 205
 Val Tyr Pro Asn Ser Arg Ala Ala Glu Asp Ile Leu Lys Leu Thr His
 210 215 220
 Glu Ile Ala Asn Ile Leu His Ile Glu Tyr Glu Arg Asp Tyr Ser Gln
 225 230 235 240
 Arg Thr Thr

<210> 588
 <211> 527
 <212> PRT
 <213> C. Trachomatis D serovar

<400> 588
 Met Pro Ser Leu Ser Gln Ser Arg Arg Ile Ile Gln Gln Ser Ser Ile
 1 5 10 15
 Arg Lys Ile Trp Asn Gln Ile Asp Thr Ser Pro Lys His Gly Val Cys
 20 25 30
 Val Pro Leu Phe Ser Leu Tyr Thr Gln Glu Ser Cys Gly Ile Gly Glu
 35 40 45
 Phe Leu Asp Leu Ile Pro Met Ile Asp Trp Cys Ile Ser Cys Gly Phe
 50 55 60
 Gln Ile Leu Gln Ile Leu Pro Ile Asn Asp Thr Gly Ser Cys Ser Ser
 65 70 75 80
 Pro Tyr Asn Ser Ile Ser Ser Ile Ala Leu Asn Pro Leu His Leu Ser
 85 90 95
 Ile Ser Ala Leu Pro Tyr Lys Glu Glu Val Pro Ala Ala Glu Thr Arg
 100 105 110
 Ile Arg Glu Met Gln Gln Leu Ser Gln Leu Pro Gln Val His Tyr Glu
 115 120 125
 Lys Val Arg Ser Met Lys Arg Asp Phe Phe Gln Glu Tyr Tyr Arg Val
 130 135 140
 Cys Lys Gln Lys Lys Leu Thr Asp His Pro Asp Phe Tyr Ala Phe Cys
 145 150 155 160
 Glu Gln Glu Lys Tyr Trp Leu His Pro Tyr Ala Leu Phe Arg Ser Ile
 165 170 175
 Arg Glu His Leu Asp Asn Leu Pro Ile Asn His Trp Pro Thr Tyr
 180 185 190
 Thr Asp Leu Ser Gln Ile Thr Glu His Glu Arg Thr Phe Ala Glu Asp
 195 200 205
 Ile Gln Phe His Ser Tyr Leu Gln Tyr Leu Cys Phe Gln Gln Met Thr
 210 215 220
 Gln Val Arg Glu His Ala Asn Cys Lys Ser Cys Leu Ile Lys Gly Asp
 225 230 235 240
 Ile Pro Ile Leu Ile Ser Lys Asp Ser Cys Asp Val Trp Phe Tyr Arg
 245 250 255
 His Tyr Phe Ser Ser Ser Glu Ser Val Gly Ala Pro Pro Asp Leu Tyr
 260 265 270
 Asn Ala Glu Gly Gln Asn Trp His Leu Pro Ile Cys Asn Met Lys Thr
 275 280 285
 Leu Gln Gln Asp Asn Tyr Leu Trp Trp Lys Glu Arg Leu Arg Tyr Ala
 290 295 300

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Glu Asn Phe Tyr Ser Leu Tyr Arg Leu Asp His Val Val Gly Leu Phe
 305 310 315 320
 Arg Phe Trp Val Trp Asp Glu Ser Gly Cys Gly Arg Phe Glu Pro His
 325 330 335
 Asp Pro Lys Asn Tyr Leu Ala Gln Gly Gln Asp Ile Leu Ser His Leu
 340 345 350
 Leu Thr Ser Ser Ser Met Leu Pro Ile Gly Glu Asp Leu Gly Thr Ile
 355 360 365
 Pro Ser Asp Val Lys Arg Met Leu Glu Ser Phe Ala Val Cys Gly Thr
 370 375 380
 Arg Ile Pro Arg Trp Glu Arg Asn Trp Glu Gly Asn Gly Ala Tyr Thr
 385 390 395 400
 Pro Phe Asp Gln Tyr Asp Pro Leu Ser Val Thr Ser Leu Ser Thr His
 405 410 415
 Asp Ser Ser Thr Leu Ala Ser Trp Trp Lys Glu Ser Pro Gln Glu Ser
 420 425 430
 Lys Leu Phe Ala Gln Phe Leu Gly Leu Pro Tyr Ser Ser Thr Leu Ser
 435 440 445
 Leu His Asn His Thr Glu Ile Leu Lys Leu Ser His Lys Thr Ser Ser
 450 455 460
 Ile Phe Arg Ile Asn Leu Ile Asn Asp Tyr Leu Ala Leu Phe Pro Asp
 465 470 475 480
 Leu Ile Ser Lys Thr Pro Arg Tyr Glu Arg Ile Asn Leu Pro Gly Thr
 485 490 495
 Ile Ser Lys Asn Asn Trp Val Tyr Arg Val Lys Pro Ser Ile Glu Asp
 500 505 510
 Leu Ser Ser His Ser Lys Leu Asn Ser Leu Leu Glu Ala Leu Phe
 515 520 525

<210> 589

<211> 146

<212> PRT

<213> C. Trachomatis D serovar

<400> 589

Met Gln Asn Gln Phe Glu Gln Leu Leu Thr Glu Leu Gly Thr Gln Ile
 1 5 10 15
 Asn Ser Pro Leu Thr Pro Asp Ser Asn Asn Ala Cys Ile Val Arg Phe
 20 25 30
 Gly Tyr Asn Asn Val Ala Val Gln Ile Glu Glu Asp Gly Asn Ser Gly
 35 40 45
 Phe Leu Val Ala Gly Val Met Leu Gly Lys Leu Pro Glu Asn Thr Phe
 50 55 60
 Arg Gln Lys Ile Phe Lys Ala Ala Leu Ser Ile Asn Gly Ser Pro Gln
 65 70 75 80
 Ser Asn Ile Lys Gly Thr Leu Gly Tyr Gly Glu Ile Ser Asn Gln Leu
 85 90 95
 Tyr Leu Cys Asp Arg Leu Asn Met Thr Tyr Leu Asn Gly Glu Lys Leu
 100 105 110
 Ala Arg Tyr Leu Val Leu Phe Ser Gln His Ala Asn Ile Trp Met Gln
 115 120 125
 Ser Ile Ser Lys Gly Ala Leu Pro Asp Leu His Ala Leu Gly Met Tyr
 130 135 140
 His Leu
 145

<210> 590

<211> 650
 <212> PRT
 <213> C. Trachomatis D serovar

<400> 590

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Thr | Ile | Pro | Ile | His | Glu | Asn | Lys | Tyr | Ser | Met | Ile | Ser | Phe | Thr |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Arg | Thr | Ile | Gly | Phe | Arg | Leu | Trp | Leu | Ile | Cys | Val | Ala | Ala | Ile | Met |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Phe | Pro | Leu | Gly | Ile | Asn | Ile | Leu | Gln | Leu | Asn | Leu | Gln | Gln | Tyr | Lys |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Lys | Thr | Leu | Ser | Ser | Ile | Thr | Ser | Asp | Leu | Arg | Glu | Asn | Ala | Leu | Phe |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Lys | Ala | His | Thr | Leu | Gln | Gln | Thr | Ile | Pro | Leu | Asn | Ile | Asp | Ile | Leu |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Ala | Leu | Phe | Ser | Glu | Ile | Phe | Asp | Leu | Asp | Arg | Gly | Val | Pro | Ala | Glu |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Pro | Asp | Leu | Ala | Leu | Ser | Lys | Glu | Met | Glu | Lys | Ile | Phe | His | Ser | Thr |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Tyr | Lys | Glu | Ile | Ser | Leu | Val | Lys | Lys | Glu | Ala | Asp | Gly | Asn | Phe | Arg |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Val | Val | Ala | Ser | Ser | Arg | Ile | Glu | Gln | Leu | Gly | Lys | Asn | Tyr | Asn | Gln |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Glu | Ile | Phe | Leu | Ser | Asp | Ser | Gln | Pro | Phe | Leu | Ala | Thr | Leu | Arg | His |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ser | Gly | Ser | Asp | Ser | Gln | Val | Leu | Ala | Val | Leu | Gln | Thr | Asn | Ile | Phe |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Asp | Ile | Ser | Ser | Gln | Glu | Val | Leu | Gly | Val | Leu | Tyr | Thr | Leu | Ser | Asp |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Thr | Asn | Tyr | Leu | Leu | Asn | Gly | Leu | Leu | Ala | Ala | Lys | Asp | Pro | Leu | Ser |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Val | Lys | Thr | Ala | Ile | Leu | Ser | Lys | Asn | Gly | Ile | Ile | Leu | Gln | Ala | Thr |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Asp | Ser | Ser | Leu | Asp | Leu | Val | Ser | Ile | His | Lys | Thr | Val | Ser | Lys | Glu |
| 225 | | | | 230 | | | | | | 235 | | | | | 240 |
| Gln | Phe | Cys | Asp | Val | Phe | Leu | Arg | Asp | Asp | Ile | Cys | Pro | Pro | His | Leu |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Leu | Leu | Arg | Pro | Pro | Leu | Asn | Leu | Asp | Pro | Leu | Pro | Tyr | Gly | Glu | Asn |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Phe | Val | Ser | Phe | Cys | Ile | Gly | Asn | Thr | Glu | Met | Trp | Gly | Tyr | Ile | His |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Ser | Leu | Pro | Glu | Met | Asp | Phe | Arg | Ile | Leu | Thr | Tyr | Glu | Glu | Lys | Ser |
| | 290 | | | | 295 | | | | | | 300 | | | | |
| Ile | Ile | Phe | Ala | Ser | Leu | Trp | Arg | Arg | Thr | Leu | Leu | Tyr | Phe | Ala | Tyr |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Phe | Cys | Cys | Val | Leu | Leu | Gly | Ser | Ile | Thr | Ala | Phe | Leu | Val | Ala | Lys |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Arg | Leu | Ser | Lys | Pro | Ile | Arg | Lys | Leu | Ala | Thr | Ala | Met | Met | Glu | Thr |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Arg | Arg | Asn | Gln | His | His | Pro | Tyr | Glu | Pro | Asp | Ser | Leu | Gly | Phe | Glu |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Ile | Asn | His | Leu | Gly | Glu | Ile | Phe | Asn | Ser | Met | Val | Gln | Ser | Leu | Leu |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Gln | Gln | Gln | Ser | Leu | Ala | Glu | Lys | Asn | Phe | Glu | Ile | Lys | Gln | His | Ala |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Gln | Asn | Ala | Leu | Arg | Leu | Gly | Glu | Glu | Ala | Gln | Gln | Cys | Leu | Leu | Pro |
| | | | | 405 | | | | | 410 | | | | | 415 | |

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Asn Gln Leu Pro Asp Ser Pro Thr Thr Glu Ile Ala Lys Ala Tyr Ile
 420 425 430
 Pro Ala Ile Thr Val Gly Gly Asp Phe Phe Asp Ile Phe Val Ile Gly
 435 440 445
 Glu Gly Pro Gln Ala Lys Leu Phe Leu Ile Val Ala Asp Ala Ser Gly
 450 455 460
 Lys Gly Val Asn Ala Cys Ala Tyr Ser Leu Phe Leu Lys Asn Met Leu
 465 470 475 480
 His Thr Phe Leu Ser Glu Leu Ser Ser Ile Gln Glu Ala Val Gln Gln
 485 490 495
 Thr Ala Ala Leu Phe Tyr Gln Gln Thr Ala Glu Ser Gly Met Phe Val
 500 505 510
 Thr Leu Cys Ile Tyr Cys Tyr His Tyr Ala Thr Arg Glu Leu Glu Tyr
 515 520 525
 Tyr Ser Cys Gly His Asn Pro Ala Cys Leu Arg Ala Pro Asn Gly Asp
 530 535 540
 Ile Ser Phe Leu Ser His Pro Gly Met Ala Leu Gly Phe Leu Pro Glu
 545 550 555 560
 Val Pro Pro His Pro Ala Tyr Thr Leu Val Leu Glu Glu Glu Ser Leu
 565 570 575
 Leu Val Leu Tyr Thr Asp Gly Val Thr Glu Ala Ser Asn Lys His Gly
 580 585 590
 Glu Met Phe Gly Glu Glu Arg Leu Lys Ala Leu Val Ala Ser Leu Thr
 595 600 605
 Lys Gln Ser Ala Glu Glu Ala Ile Gln Ser Ile Met Phe Ser Ile Lys
 610 615 620
 Ser Phe Val Lys Asp Cys Pro Gln His Asp Asp Ile Thr Leu Leu Val
 625 630 635 640
 Leu Lys Ile Pro Lys Glu Pro Ser Ala Tyr
 645 650

<210> 591
 <211> 313
 <212> PRT
 <213> C. Trachomatis D serovar

<400> 591
 Met Leu Ser Tyr Ile Lys Arg Arg Leu Leu Phe Asn Leu Leu Ser Leu
 1 5 10 15
 Trp Val Val Val Thr Leu Thr Phe Phe Ile Ile Lys Thr Ile Pro Gly
 20 25 30
 Asp Pro Phe Asn Asp Glu Asn Gly Asn Ile Leu Ser Ser Glu Thr Leu
 35 40 45
 Ala Leu Leu Lys Asn Arg Tyr Gly Leu Asp Lys Pro Leu Phe Thr Gln
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 Tyr Leu Ile Tyr Leu Lys Cys Leu Leu Thr Leu Asp Phe Gly Glu Ser
 65 70 75 80
 Leu Ile Tyr Lys Asp Arg Thr Val Ile Ser Ile Ile Ala Ala Ala Leu
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 Pro Ser Ser Ala Ile Leu Gly Leu Glu Ser Leu Cys Leu Ser Leu Phe
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 Gly Gly Ile Thr Leu Gly Ile Leu Ala Ala Phe Tyr Lys Lys Ser Cys
 115 120 125
 Gly Arg Thr Ile Phe Phe Ser Ser Val Ile Gln Ile Ser Val Pro Ala
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| Ala | Thr | Cys | Ser | Ile | Lys | Lys | Phe | Val | Ala | Lys | Ala | Val | Glu | Tyr | Gln | |
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| Ile | Pro | Ala | Leu | Ala | Leu | Thr | Asp | His | Gly | Asn | Leu | Phe | Gly | Ala | Val | |
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| Glu | Phe | Tyr | Lys | Thr | Cys | Lys | Gln | Asn | Ala | Ile | Lys | Pro | Ile | Ile | Gly | |
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| Cys | Glu | Leu | Tyr | Val | Ala | Pro | Ser | Ser | Arg | Phe | Asp | Lys | Lys | Lys | Glu | |
| 65 | | | | 70 | | | | | | 75 | | | | | 80 | |
| Arg | Lys | Ser | Arg | Val | Ala | Asn | His | Leu | Ile | Leu | Leu | Cys | Lys | Asp | Glu | |
| | | | | 85 | | | | | 90 | | | | | 95 | | |
| Glu | Gly | Tyr | Arg | Asn | Leu | Cys | Leu | Leu | Ser | Ser | Leu | Ala | Tyr | Thr | Glu | |
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| Ser | Lys | Gly | Leu | Ile | Cys | Leu | Ser | Ala | Cys | Leu | Ser | Gly | Ser | Val | Ala | |
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| Gln | Ala | Ala | Leu | Glu | Ser | Glu | Glu | Asp | Leu | Glu | Lys | Asp | Leu | Leu | Trp | |
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| Tyr | Gln | Asp | Leu | Phe | Gln | Glu | Asp | Phe | Phe | Ser | Glu | Val | Gln | Leu | His | |
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| Lys | Ser | Ser | Glu | Glu | Lys | Val | Ala | Leu | Phe | Glu | Glu | Thr | Trp | Leu | Lys | |
| | | | 180 | | | | | 185 | | | | | 190 | | | |
| Gln | Asn | Tyr | Tyr | Gln | Phe | Ile | Glu | Lys | Gln | Leu | Lys | Val | Asn | Glu | Ala | |
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| Val | Leu | Ala | Thr | Ser | Lys | Arg | Leu | Gly | Ile | Pro | Ser | Val | Ala | Thr | Asn | |
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| Asp | Ile | His | Tyr | Leu | Asn | Pro | Asp | Asp | Trp | Leu | Ala | His | Glu | Ile | Leu | |
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| Leu | Asn | Val | Gln | Ser | Arg | Glu | Pro | Ile | Arg | Thr | Ala | Lys | Gln | Asn | Thr |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Tyr | Ile | Pro | Asn | Pro | Lys | Arg | Lys | Thr | Tyr | Pro | Ser | Arg | Glu | Phe | Tyr |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Phe | Lys | Ser | Pro | Gln | Glu | Ile | Ala | Glu | Leu | Phe | Ala | Ala | His | Pro | Glu |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Thr | Ile | Thr | Asn | Thr | Cys | Ile | Val | Ala | Glu | Arg | Cys | His | Leu | Glu | Leu |
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| Asp | Phe | Glu | Thr | Lys | His | Tyr | Pro | Ile | Tyr | Val | Pro | Glu | Ala | Leu | Gln |
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| Lys | Lys | Gly | Ser | Tyr | Thr | Glu | Glu | Glu | Arg | Tyr | Lys | Ala | Ser | Ser | Ala |
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| Phe | Leu | Glu | Glu | Leu | Cys | Glu | Gln | Gly | Leu | Thr | Ser | Lys | Tyr | Thr | Pro |
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| Glu | Leu | Leu | Gly | His | Ile | Ala | Lys | Lys | Phe | Pro | Gly | Glu | Asp | Pro | Leu |
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| Thr | Leu | Val | Lys | Glu | Arg | Leu | Lys | Leu | Glu | Ser | Ser | Ile | Ile | Ile | Ser |
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| Lys | Gly | Met | Cys | Asp | Tyr | Leu | Leu | Ile | Val | Trp | Asp | Ile | Ile | Asn | Trp |
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| Ala | Lys | Asp | His | Gly | Ile | Pro | Val | Gly | Pro | Gly | Arg | Gly | Ser | Gly | Ala |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Gly | Ser | Val | Met | Leu | Phe | Leu | Leu | Gly | Ile | Thr | Glu | Ile | Glu | Pro | Ile |
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| Ile | Asn | Tyr | Ala | Ile | Glu | Arg | His | Gly | Lys | Asp | Asn | Val | Ala | Gln | Ile |
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| Ile | Thr | Phe | Gly | Thr | Met | Lys | Ala | Lys | Met | Ala | Ile | Lys | Asp | Val | Gly |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Arg | Thr | Leu | Asp | Thr | Pro | Leu | Ala | Lys | Val | Asn | Phe | Ile | Ala | Lys | His |
| | | | 500 | | | | | 505 | | | | | 510 | | |
| Ile | Pro | Asp | Leu | Asn | Ala | Thr | Ile | Thr | Ser | Ala | Leu | Glu | Ala | Asp | Pro |
| | | 515 | | | | | 520 | | | | | 525 | | | |
| Glu | Leu | Arg | Gln | Leu | Tyr | Val | Asp | Asp | Ala | Glu | Ala | Ala | Glu | Val | Ile |
| | 530 | | | | | 535 | | | | | 540 | | | | |
| Asp | Met | Ala | Lys | Lys | Leu | Glu | Gly | Ser | Ile | Arg | Asn | Thr | Gly | Val | His |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 |
| Ala | Ala | Gly | Val | Ile | Ile | Cys | Gly | Asp | Pro | Leu | Thr | Asn | His | Ile | Pro |
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| Ile | Cys | Val | Pro | Lys | Asp | Ser | Ser | Met | Ile | Ser | Thr | Gln | Tyr | Ser | Met |
| | | | 580 | | | | | 585 | | | | | 590 | | |
| Lys | Pro | Val | Glu | Ser | Val | Gly | Met | Leu | Lys | Val | Asp | Phe | Leu | Gly | Leu |
| | | 595 | | | | | 600 | | | | | 605 | | | |
| Lys | Thr | Leu | Thr | Gly | Ile | His | Ile | Ala | Thr | Gln | Ala | Ile | Tyr | Lys | Lys |
| | 610 | | | | | 615 | | | | | 620 | | | | |
| Thr | Gly | Ile | Leu | Leu | Arg | Ala | Ala | Thr | Ile | Pro | Leu | Asp | Asp | Gln | Asn |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 |
| Thr | Phe | Ser | Leu | Leu | His | Gln | Gly | Lys | Thr | Met | Gly | Ile | Phe | Gln | Met |
| | | | | 645 | | | | | 650 | | | | | 655 | |
| Glu | Ser | Arg | Gly | Met | Gln | Asp | Leu | Ala | Lys | Asn | Leu | Arg | Pro | Asp | Ala |
| | | | 660 | | | | | 665 | | | | | 670 | | |
| Phe | Glu | Glu | Ile | Ile | Ala | Ile | Gly | Ala | Leu | Tyr | Arg | Pro | Gly | Pro | Met |
| | | 675 | | | | | 680 | | | | | 685 | | | |
| Asp | Met | Ile | Pro | Ser | Phe | Ile | Asn | Arg | Lys | His | Gly | Lys | Glu | Asn | Ile |

| | | |
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| 690 | 695 | 700 |
| Glu Tyr Asp His Pro Leu Met Glu Pro Ile Leu Lys Glu Thr Phe Gly | | |
| 705 | 710 | 715 |
| Ile Met Val Tyr Gln Glu Gln Val Met Gln Ile Ala Gly Ser Leu Ala | | 720 |
| | 725 | 730 |
| Lys Tyr Ser Leu Gly Glu Gly Asp Val Leu Arg Arg Ala Met Gly Lys | | 735 |
| | 740 | 745 |
| Lys Asp His Glu Gln Met Val Lys Glu Arg Glu Lys Phe Cys Ser Arg | | 750 |
| | 755 | 760 |
| Ala Ala Ala Asn Gly Ile Asp Pro Ser Ile Ala Thr Thr Ile Phe Asp | | 765 |
| | 770 | 775 |
| Lys Met Glu Lys Phe Ala Ser Tyr Gly Phe Asn Lys Ser His Ala Ala | | 780 |
| 785 | 790 | 795 |
| Ala Tyr Gly Leu Ile Thr Tyr Thr Thr Ala Tyr Leu Lys Ala Asn Tyr | | 800 |
| | 805 | 810 |
| Pro Lys Glu Trp Leu Ala Ala Leu Leu Thr Cys Asp Tyr Asp Asp Ile | | 815 |
| | 820 | 825 |
| Glu Lys Val Gly Lys Leu Ile Gln Glu Ala His Ser Met Asn Ile Leu | | 830 |
| | 835 | 840 |
| Val Leu Pro Pro Asp Ile Asn Glu Ser Gly Gln Asp Phe Glu Ala Thr | | 845 |
| | 850 | 855 |
| Gln Lys Gly Ile Arg Phe Ser Leu Gly Ala Val Lys Gly Val Gly Met | | 860 |
| 865 | 870 | 875 |
| Ser Ile Val Asp Ser Ile Val Glu Glu Arg Glu Lys Asn Gly Pro Tyr | | 880 |
| | 885 | 890 |
| Lys Ser Leu Gln Asp Phe Val Gln Arg Ala Asp Phe Lys Lys Val Thr | | 895 |
| | 900 | 905 |
| Lys Lys Gln Leu Glu Asn Leu Val Asp Ala Gly Thr Phe Asp Cys Phe | | 910 |
| | 915 | 920 |
| Glu Pro Asn Lys Asp Leu Ala Leu Ala Ile Leu Asn Asp Leu Tyr Asp | | 925 |
| | 930 | 935 |
| Thr Phe Ser Arg Glu Lys Lys Glu Ala Ala Thr Gly Val Leu Thr Phe | | 940 |
| 945 | 950 | 955 |
| Phe Ser Leu Asp Ser Met Ala Arg Asp Pro Val Lys Ile Thr Val Ser | | 960 |
| | 965 | 970 |
| Pro Glu Asn Val Ile Gln Arg Ser Pro Lys Glu Leu Leu Lys Arg Glu | | 975 |
| | 980 | 985 |
| Lys Glu Leu Leu Gly Val Tyr Leu Thr Ala His Pro Met Asp Ala Val | | 990 |
| | 995 | 1000 |
| Glu His Met Leu Pro Phe Leu Ser Val Val Pro Ala Arg Asp Phe Glu | | 1005 |
| | 1010 | 1015 |
| Gly Leu Pro His Gly Thr Ile Ile Arg Thr Val Phe Leu Ile Asp Lys | | 1020 |
| 1025 | 1030 | 1035 |
| Val Thr Thr Lys Ile Ser Ser Ala Glu Gln Lys Lys Phe Ala Leu Leu | | 1040 |
| | 1045 | 1050 |
| Gln Val Ser Asp Glu Val Asp Ser Tyr Glu Leu Pro Ile Trp Ala Asp | | 1055 |
| | 1060 | 1065 |
| Met Tyr Ala Glu Tyr Arg Asp Leu Leu Glu Glu Asp Arg Leu Ile Tyr | | 1070 |
| | 1075 | 1080 |
| Ala Ile Leu Ala Ile Asp Arg Ser Asp Ser Leu Arg Leu Ser Cys | | 1085 |
| | 1090 | 1095 |
| Arg Trp Met Arg Asp Leu Ser Thr Val Asn Asp Ser Val Ile Ala Glu | | 1100 |
| 1105 | 1110 | 1115 |
| Cys Asp Glu Val Tyr Asp Arg Leu Lys Ser Gln Lys Val Tyr Ser Ser | | 1120 |
| | 1125 | 1130 |
| Thr Lys Lys Ser Thr Gly Ala Gln Ser Ser Ala Met Ile Lys Lys Val | | 1135 |
| | 1140 | 1145 |
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 Leu Arg His Ser His Leu Phe Ile Leu Lys Gly Leu Ile Arg Lys Tyr
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 Ser Gly Ser Gln Ala Leu Ser Leu Val Phe Thr Lys Asp Asn Gln Arg
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 Phe Ala Ser Ile Ser Pro Asp Ala Asp Phe Phe Val Thr Asp Asp Ile
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 Pro Leu Ala Val Ile Ser Gly Ile Ala Val Met Ser Gly Leu Leu Ser
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 85 90 95
 Gln Lys Gln Leu Glu Glu Ser Leu Pro Leu Asp Asn Ala Thr Glu His
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 Val Ser Tyr Leu Thr Ser Asp Thr Ser Tyr Phe Asn Gln Trp Glu Ser
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 Leu Gly Ala Leu Asn Lys Gln Leu Ser Gln Ile Asp Leu Thr Ile Gln
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 Ala Pro Glu Lys Lys Leu Leu Lys Glu Val Leu Gly Ser Arg Tyr Asp
 145 150 155 160
 Ser Ile Asn His Ser Ile Glu Glu Ile Ser Asp Arg Phe Thr Lys Met
 165 170 175
 Leu Ser Leu Leu Arg Leu Arg Glu His Phe Tyr Arg Gly Glu Glu Arg
 180 185 190
 Tyr Ala Pro Tyr Leu Ser Pro Pro Leu Leu Asn Lys Asn Arg Leu Leu
 195 200 205
 Thr Gln Ile Thr Ser Asn Met Ile Arg Met Leu Pro Lys Ser Gly Gly
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 Val Phe Ser Leu Lys Ala Asn Thr Leu Ser His Ala Ser Arg Thr Leu
 225 230 235 240
 Tyr Thr Val Leu Lys Val Ala Leu Ser Leu Gly Val Leu Ala Gly Val
 245 250 255
 Ala Ala Leu Ile Ile Phe Leu Pro Pro Ser Leu Pro Phe Ile Ala Val
 260 265 270
 Ile Gly Val Ser Ser Leu Ala Leu Gly Met Ala Ser Phe Leu Met Ile
 275 280 285
 Arg Gly Ile Lys Tyr Leu Leu Glu His Ser Pro Leu Asn Arg Lys Gln
 290 295 300

Leu Ala Lys Asp Ile Gln Lys Thr Ile Gly Pro Asp Val Leu Ala Ser
 305 310 315 320
 Met Val His Tyr Gln His Gln Leu Leu Ser His Leu His Glu Thr Leu
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 Leu Asp Glu Ala Ile Thr Ala Arg Trp Ser Glu Pro Phe Phe Ile Glu
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 His Ala Asn Leu Lys Ala Lys Ile Glu Asp Leu Thr Lys Gln Tyr Asp
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 Ile Leu Asn Ala Ala Phe Asn Lys Ser Leu Gln Gln Asp Glu Ala Leu
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 Arg Ser Gln Leu Glu Lys Arg Ala Tyr Leu Phe Pro Ile Pro Asn Asn
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 405 410 415
 Asp Ser Asn Ser Glu Phe Gln Glu Ile Ile Asn Lys Gly Leu Glu Ala
 420 425 430
 Ala Asn Lys Arg Arg Ala Asp Ala Lys Ser Lys Phe Tyr Thr Glu Asp
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 Glu Thr Ser Asp Lys Ile Phe Ser Ile Trp Lys Pro Thr Lys Asn Leu
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 Ala Leu Glu Asp Leu Trp Arg Val His Glu Ala Cys Asn Glu Glu Gln
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 Gln Ala Leu Leu Leu Glu Asp Tyr Met Ser Tyr Lys Thr Ser Glu Cys
 485 490 495
 Gln Ala Ala Leu Gln Lys Val Ser Gln Glu Leu Lys Ala Ala Gln Lys
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 Ser Phe Ala Val Leu Glu Lys His Ala Leu Asp Arg Ser Tyr Glu Ser
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 Ser Val Ala Thr Met Asp Leu Ala Arg Ala Asn Gln Glu Thr His Arg
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 Gly Ala Glu Tyr Ile Val Ser Gly Asn Ala Ser Phe Thr Lys Phe Thr
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 Asn Ile Pro Thr Thr Asp Thr Thr Thr Pro Thr Asn Ser Asn Ser Ser
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 Ser Ser Asn Gly Glu Thr Ala Ser Val Ser Glu Asp Ser Asp Ser Thr
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 Thr Thr Thr Pro Asp Pro Lys Gly Gly Gly Ala Phe Tyr Asn Ala His
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 Ser Gly Val Leu Ser Phe Met Thr Arg Ser Gly Thr Glu Gly Ser Leu
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T06240 "2E44301

| | | | | | | | | | | | | | | | |
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| Gln | Gly | Glu | Leu | Leu | Phe | Thr | Asp | Leu | Thr | Gly | Leu | Thr | Ile | Gln | Asn |
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| Asn | Leu | Ser | Gln | Leu | Ser | Gly | Gly | Ala | Ile | Phe | Gly | Glu | Ser | Thr | Ile |
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| Ser | Leu | Ser | Gly | Ile | Thr | Lys | Ala | Thr | Phe | Ser | Ser | Asn | Ser | Ala | Glu |
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| Val | Pro | Ala | Pro | Val | Lys | Lys | Pro | Thr | Glu | Pro | Lys | Ala | Gln | Thr | Ala |
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| Ser | Pro | Ser | Ser | Ser | Arg | Ala | Glu | Pro | Ala | Ala | Ala | Asn | Leu | Gln | Ser |
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| His | Phe | Ile | Cys | Ala | Thr | Ala | Thr | Pro | Ala | Ala | Gln | Thr | Asp | Thr | Glu |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Thr | Ser | Thr | Pro | Ser | His | Lys | Pro | Gly | Ser | Gly | Gly | Ala | Ile | Tyr | Ala |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Lys | Gly | Asp | Leu | Thr | Ile | Ala | Asp | Ser | Gln | Glu | Val | Leu | Phe | Ser | Ile |
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| Ser | Phe | Glu | Asn | Ile | Thr | Ser | Leu | Lys | Val | Gln | Thr | Asn | Gly | Ala | Glu |
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| Glu | Lys | Gly | Gly | Ala | Ile | Tyr | Ala | Lys | Gly | Asp | Leu | Ser | Ile | Gln | Ser |
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| Ser | Lys | Gln | Ser | Leu | Phe | Asn | Ser | Asn | Tyr | Ser | Lys | Gln | Gly | Gly | Gly |
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| Thr | Ala | Lys | Gly | Gly | Gly | Leu | Tyr | Thr | Asp | Lys | Asn | Leu | Ser | Ile | Thr |
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| Glu | Ile | Ser | Gln | Thr | Tyr | Thr | Ser | Asp | Val | Glu | Thr | Ile | Pro | Gly | Ile |
| | | | | 565 | | | | | 570 | | | | | 575 | |
| Thr | Pro | Val | His | Gly | Glu | Thr | Val | Ile | Thr | Gly | Asn | Lys | Ser | Thr | Gly |

| | | | | | | | | | | | | | | | | | |
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| Gly | Asn | Gly | Gly | Gly | Val | Cys | Thr | Lys | Arg | Leu | Ala | Leu | Ser | Asn | Leu | | |
| | | 595 | | | | | 600 | | | | | 605 | | | | | |
| Gln | Ser | Ile | Ser | Ile | Ser | Gly | Asn | Ser | Ala | Ala | Glu | Asn | Gly | Gly | Gly | | |
| | 610 | | | | | 615 | | | | | 620 | | | | | | |
| Ala | His | Thr | Cys | Pro | Asp | Ser | Phe | Pro | Thr | Ala | Asp | Thr | Ala | Glu | Gln | | |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 | | |
| Pro | Ala | Ala | Ala | Ser | Ala | Ala | Thr | Ser | Thr | Pro | Glu | Ser | Ala | Pro | Val | | |
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| Val | Ser | Thr | Ala | Leu | Ser | Thr | Pro | Ser | Ser | Ser | Thr | Val | Ser | Ser | Leu | | |
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| Thr | Leu | Leu | Ala | Ala | Ser | Ser | Gln | Ala | Ser | Pro | Ala | Thr | Ser | Asn | Lys | | |
| | | | 675 | | | | 680 | | | | | 685 | | | | | |
| Glu | Thr | Gln | Asp | Pro | Asn | Ala | Asp | Thr | Asp | Leu | Leu | Ile | Asp | Tyr | Val | | |
| | 690 | | | | | 695 | | | | | 700 | | | | | | |
| Val | Asp | Thr | Thr | Ile | Ser | Lys | Asn | Thr | Ala | Lys | Lys | Gly | Gly | Gly | Ile | | |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 | | |
| Tyr | Ala | Lys | Lys | Ala | Lys | Met | Ser | Arg | Ile | Asp | Gln | Leu | Asn | Ile | Ser | | |
| | | | | 725 | | | | | 730 | | | | | 735 | | | |
| Glu | Asn | Ser | Ala | Thr | Glu | Ile | Gly | Gly | Gly | Ile | Cys | Cys | Lys | Glu | Ser | | |
| | | | 740 | | | | 745 | | | | | 750 | | | | | |
| Leu | Glu | Leu | Asp | Ala | Leu | Val | Ser | Leu | Ser | Val | Thr | Glu | Asn | Leu | Val | | |
| | | 755 | | | | | 760 | | | | | 765 | | | | | |
| Gly | Lys | Glu | Gly | Gly | Gly | Leu | His | Ala | Lys | Thr | Val | Asn | Ile | Ser | Asn | | |
| | 770 | | | | | 775 | | | | | 780 | | | | | | |
| Leu | Lys | Ser | Gly | Phe | Ser | Phe | Ser | Asn | Asn | Lys | Ala | Asn | Ser | Ser | Ser | | |
| 785 | | | | | 790 | | | | | 795 | | | | | 800 | | |
| Thr | Gly | Val | Ala | Thr | Thr | Ala | Ser | Ala | Pro | Ala | Ala | Ala | Ala | Ala | Ser | | |
| | | | | 805 | | | | | 810 | | | | | 815 | | | |
| Leu | Gln | Ala | Ala | Ala | Ala | Ala | Val | Pro | Ser | Ser | Pro | Ala | Thr | Pro | Thr | | |
| | | 820 | | | | | | 825 | | | | | 830 | | | | |
| Tyr | Ser | Gly | Val | Val | Gly | Gly | Ala | Ile | Tyr | Gly | Glu | Lys | Val | Thr | Phe | | |
| | | 835 | | | | | 840 | | | | | 845 | | | | | |
| Ser | Gln | Cys | Ser | Gly | Thr | Cys | Gln | Phe | Ser | Gly | Asn | Gln | Ala | Ile | Asp | | |
| | 850 | | | | | 855 | | | | | 860 | | | | | | |
| Asn | Asn | Pro | Ser | Gln | Ser | Ser | Leu | Asn | Val | Gln | Gly | Gly | Ala | Ile | Tyr | | |
| 865 | | | | | 870 | | | | | 875 | | | | | 880 | | |
| Ala | Lys | Thr | Ser | Leu | Ser | Ile | Gly | Ser | Ser | Asp | Ala | Gly | Thr | Ser | Tyr | | |
| | | | | 885 | | | | | 890 | | | | | 895 | | | |
| Ile | Phe | Ser | Gly | Asn | Ser | Val | Ser | Thr | Gly | Lys | Ser | Gln | Thr | Thr | Gly | | |
| | | | 900 | | | | | 905 | | | | | 910 | | | | |
| Gln | Ile | Ala | Gly | Gly | Ala | Ile | Tyr | Ser | Pro | Thr | Val | Thr | Leu | Asn | Cys | | |
| | | 915 | | | | | 920 | | | | | 925 | | | | | |
| Pro | Ala | Thr | Phe | Ser | Asn | Asn | Thr | Ala | Ser | Met | Ala | Thr | Pro | Lys | Thr | | |
| | | 930 | | | | 935 | | | | | 940 | | | | | | |
| Ser | Ser | Glu | Asp | Gly | Ser | Ser | Gly | Asn | Ser | Ile | Lys | Asp | Thr | Ile | Gly | | |
| 945 | | | | | 950 | | | | | 955 | | | | | 960 | | |
| Gly | Ala | Ile | Ala | Gly | Thr | Ala | Ile | Thr | Leu | Ser | Gly | Val | Ser | Arg | Phe | | |
| | | | | 965 | | | | | 970 | | | | | 975 | | | |
| Ser | Gly | Asn | Thr | Ala | Asp | Leu | Gly | Ala | Ala | Ile | Gly | Thr | Leu | Ala | Asn | | |
| | | | 980 | | | | | 985 | | | | | 990 | | | | |
| Ala | Asn | Thr | Pro | Ser | Ala | Thr | Ser | Gly | Ser | Gln | Asn | Ser | Ile | Thr | Glu | | |
| | | 995 | | | | | 1000 | | | | | 1005 | | | | | |
| Lys | Ile | Thr | Leu | Glu | Asn | Gly | Ser | Phe | Ile | Phe | Glu | Arg | Asn | Gln | Ala | | |
| | 1010 | | | | | 1015 | | | | | 1020 | | | | | | |
| Asn | Lys | Arg | Gly | Ala | Ile | Tyr | Ser | Pro | Ser | Val | Ser | Ile | Lys | Gly | Asn | | |
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Asn Ile Thr Phe Asn Gln Asn Thr Ser Thr His Asp Gly Ser Ala Ile
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 Tyr Phe Thr Lys Asp Ala Thr Ile Glu Ser Leu Gly Ser Val Leu Phe
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 Thr Gly Asn Asn Val Thr Ala Thr Gln Ala Ser Ser Ala Thr Ser Gly
 1075 1080 1085
 Gln Asn Thr Asn Thr Ala Asn Tyr Gly Ala Ala Ile Phe Gly Asp Pro
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 Gly Thr Thr Gln Ser Ser Gln Thr Asp Ala Ile Leu Thr Leu Leu Ala
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 Ser Ser Gly Asn Ile Thr Phe Ser Asn Asn Ser Leu Gln Asn Asn Gln
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 Leu Ser Leu Gln Ala Ala Lys Gly Lys Thr Ile Ser Phe Phe Asp Cys
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 Val His Thr Ser Thr Lys Lys Ile Gly Ser Thr Gln Asn Val Tyr Glu
 1170 1175 1180
 Thr Leu Asp Ile Asn Lys Glu Glu Asn Ser Asn Pro Tyr Thr Gly Thr
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 Ile Val Phe Ser Ser Glu Leu His Glu Asn Lys Ser Tyr Ile Pro Gln
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 Leu His Val Val Ser Phe Glu Gln Lys Glu Gly Ser Lys Leu Ile Met
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 Lys Pro Gly Ala Val Leu Ser Asn Gln Asn Ile Ala Asn Gly Ala Leu
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 Val Ile Asn Gly Leu Thr Ile Asp Leu Ser Ser Met Gly Thr Pro Gln
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 Ala Gly Glu Ile Phe Ser Pro Pro Glu Leu Arg Ile Val Ala Thr Thr
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 Ser Ser Ala Ser Gly Gly Ser Gly Val Ser Ser Ser Ile Pro Thr Asn
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 Pro Lys Arg Ile Ser Ala Ala Ala Pro Ser Gly Ser Ala Ala Thr Thr
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 Pro Thr Met Ser Glu Asn Lys Val Phe Leu Thr Gly Asp Leu Thr Leu
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 Ile Asp Pro Asn Gly Asn Phe Tyr Gln Asn Pro Met Leu Gly Ser Asp
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 Met Gly Thr Trp Thr Leu Asp Ser Asn Pro Gln Thr Gly Lys Leu Gln
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 Ala Arg Trp Thr Phe Asp Thr Tyr Arg Arg Trp Val Tyr Ile Pro Arg
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 Asp Asn His Phe Tyr Ala Asn Ser Ile Leu Gly Ser Gln Asn Ser Met
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 Lys Lys Met His Asn Tyr Phe His Lys Gly Ser Glu Tyr Ser Tyr Gln
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 Ala Ser Val Tyr Gly Gly Lys Phe Leu Tyr Phe Leu Leu Asn Lys Gln
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 His Gly Trp Ala Leu Pro Phe Leu Ile Gln Gly Val Val Ser Tyr Gly
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 His Ile Lys His Asp Thr Thr Leu Tyr Pro Ser Ile His Glu Arg
 1570 1575 1580
 Asn Lys Gly Asp Trp Glu Asp Leu Gly Trp Leu Ala Asp Leu Arg Ile
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 Ser Met Asp Leu Lys Glu Pro Ser Lys Asp Ser Ser Lys Arg Ile Thr
 1605 1610 1615
 Val Tyr Gly Glu Leu Glu Tyr Ser Ser Ile Arg Gln Lys Gln Phe Thr
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 Glu Ile Asp Tyr Asp Pro Arg His Phe Asp Asp Cys Ala Tyr Arg Asn
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 Tyr Arg Asn Asn Pro Val Cys Lys Tyr Arg Val Leu Ser Ser Asn Glu
 1685 1690 1695
 Ala Gly Gln Val Ile Cys Gly Val Pro Thr Arg Thr Ser Ala Arg Ala
 1700 1705 1710
 Glu Tyr Ser Thr Gln Leu Tyr Leu Gly Pro Phe Trp Thr Leu Tyr Gly
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 acatgggtac cgatttataa aattttctct cagtcttggg aattaggaaa attcaatgaa 180
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Ala Gly Ala₃₅ Thr Ile Ile Val Gly₄₀ Thr Trp Val Pro Ile₄₅ Tyr Lys Ile
Phe Ser₅₀ Gln Ser Trp Glu Leu₅₅ Gly Lys Phe Asn Glu₆₀ Ser Arg Lys Leu
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Tyr Thr Ala His Arg Ile Thr Ser Ser Glu Glu Glu Ser Asp Asn Glu
      35                      40                      45

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| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Gln | Pro | Gly | Ala | Ile | Leu | Lys | Gly | Thr | Val | Val | Asp | Ile | Asn | Lys |
| 50 | | | | | | 55 | | | | | 60 | | | | |
| Asp | Phe | Val | Val | Val | Asp | Val | Gly | Leu | Lys | Ser | Glu | Gly | Val | Ile | Pro |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Met | Ser | Glu | Phe | Ile | Asp | Ser | Ser | Glu | Gly | Leu | Val | Leu | Gly | Ala | Glu |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Val | Glu | Val | Tyr | Leu | Asp | Gln | Ala | Glu | Asp | Glu | Glu | Gly | Lys | Val | Val |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Leu | Ser | Arg | Glu | Lys | Ala | Thr | Arg | Gln | Arg | Gln | Trp | Glu | Tyr | Ile | Leu |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Ala | His | Cys | Glu | Glu | Gly | Ser | Ile | Val | Lys | Gly | Gln | Ile | Thr | Arg | Lys |
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| Val | Lys | Gly | Gly | Leu | Ile | Val | Asp | Ile | Gly | Met | Glu | Ala | Phe | Leu | Pro |
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| Gly | Ser | Gln | Ile | Asp | Asn | Lys | Lys | Ile | Lys | Asn | Leu | Asp | Asp | Tyr | Val |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Gly | Lys | Val | Cys | Glu | Phe | Lys | Ile | Leu | Lys | Ile | Asn | Val | Glu | Arg | Arg |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Asn | Ile | Val | Val | Ser | Arg | Arg | Glu | Leu | Leu | Glu | Ala | Glu | Arg | Ile | Ser |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Lys | Lys | Ala | Glu | Leu | Ile | Glu | Gln | Ile | Ser | Ile | Gly | Glu | Tyr | Arg | Lys |
| | | 210 | | | | 215 | | | | | 220 | | | | |
| Gly | Val | Val | Lys | Asn | Ile | Thr | Asp | Phe | Gly | Val | Phe | Leu | Asp | Leu | Asp |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Gly | Ile | Asp | Gly | Leu | Leu | His | Ile | Thr | Asp | Met | Thr | Trp | Lys | Arg | Ile |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Arg | His | Pro | Ser | Glu | Met | Val | Glu | Leu | Asn | Gln | Glu | Leu | Glu | Val | Ile |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Ile | Leu | Ser | Val | Asp | Lys | Glu | Lys | Gly | Arg | Val | Ala | Leu | Gly | Leu | Lys |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Gln | Lys | Glu | His | Asn | Pro | Trp | Glu | Asp | Ile | Glu | Lys | Lys | Tyr | Pro | Pro |
| | | 290 | | | | 295 | | | | | 300 | | | | |
| Gly | Lys | Arg | Val | Leu | Gly | Lys | Ile | Val | Lys | Leu | Leu | Pro | Tyr | Gly | Ala |
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| Phe | Ile | Glu | Ile | Glu | Glu | Gly | Ile | Glu | Gly | Leu | Ile | His | Ile | Ser | Glu |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Met | Ser | Trp | Val | Lys | Asn | Ile | Val | Asp | Pro | Ser | Glu | Val | Val | Asn | Lys |
| | | | 340 | | | | | 345 | | | | | 350 | | |

Gly Asp Glu Val Glu Ala Ile Val Leu Ser Ile Gln Lys Asp Glu Gly
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 Lys Ile Ser Leu Gly Leu Lys Gln Thr Glu Arg Asn Pro Trp Asp Asn
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 Ile Glu Glu Lys Tyr Pro Ile Gly Leu His Val Asn Ala Glu Ile Lys
 385 390 395 400
 Asn Leu Thr Asn Tyr Gly Ala Phe Val Glu Leu Glu Pro Gly Ile Glu
 405 410 415
 Gly Leu Ile His Ile Ser Asp Met Ser Trp Ile Lys Lys Val Ser His
 420 425 430
 Pro Ser Glu Leu Phe Lys Lys Gly Asn Ser Val Glu Ala Val Ile Leu
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 Ser Val Asp Lys Glu Ser Lys Lys Ile Thr Leu Gly Val Lys Gln Leu
 450 455 460
 Ser Ser Asn Pro Trp Asn Glu Ile Glu Ala Met Phe Pro Ala Gly Thr
 465 470 475 480
 Val Ile Ser Gly Val Val Thr Lys Ile Thr Ala Phe Gly Ala Phe Val
 485 490 495
 Glu Leu Gln Asn Gly Ile Glu Gly Leu Ile His Val Ser Glu Leu Ser
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 Asp Lys Pro Phe Ala Lys Ile Glu Asp Ile Ile Ser Ile Gly Glu Asn
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 Val Ser Ala Lys Val Ile Lys Leu Asp Pro Asp His Lys Lys Val Ser
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 Lys Lys Gly Lys
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<400> 599
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Val Val Ala Tyr Leu Leu Lys Lys Gln Gly Glu Tyr Asn Val Val Gly

| | | | | | | | | | | | | | | | |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| | | | 20 | | | | 25 | | | | 30 | | | | |
| Leu | Phe | Met 35 | Lys | Asn | Trp | Gly | Glu 40 | Gln | Asp | Glu | Asn | Gly 45 | Glu | Cys | Thr |
| Ala | Thr 50 | Lys | Asp | Phe | Arg | Asp 55 | Val | Glu | Arg | Ile | Ala 60 | Glu | Gln | Leu | Ser |
| Ile 65 | Pro | Tyr | Tyr | Thr | Val 70 | Ser | Phe | Ser | Lys | Glu 75 | Tyr | Lys | Glu | Arg | Val 80 |
| Phe | Ser | Arg | Phe | Leu 85 | Arg | Glu | Tyr | Ala | Asn 90 | Gly | Tyr | Thr | Pro | Asn 95 | Pro |
| Asp | Val | Leu | Cys 100 | Asn | Arg | Glu | Ile | Lys 105 | Phe | Asp | Leu | Leu | Gln 110 | Lys | Lys |
| Val | Arg | Glu 115 | Leu | Lys | Gly | Asp | Phe 120 | Leu | Ala | Thr | Gly | His 125 | Tyr | Cys | Arg |
| Gly | Gly 130 | Ala | Asp | Gly | Thr | Gly 135 | Leu | Ser | Arg | Gly | Ile 140 | Asp | Pro | Asn | Lys |
| Asp 145 | Gln | Ser | Tyr | Phe | Leu 150 | Cys | Gly | Thr | Pro | Lys 155 | Asp | Ala | Leu | Ser | Asn 160 |
| Val | Leu | Phe | Pro | Leu 165 | Gly | Gly | Met | Tyr | Lys 170 | Thr | Glu | Val | Arg | Arg 175 | Ile |
| Ala | Gln | Glu | Ala 180 | Gly | Leu | Ala | Thr | Ala 185 | Thr | Lys | Lys | Asp | Ser 190 | Thr | Gly |
| Ile | Cys | Phe 195 | Ile | Gly | Lys | Arg | Pro 200 | Phe | Lys | Ser | Phe | Leu 205 | Glu | Gln | Phe |
| Val | Ala 210 | Asp | Ser | Pro | Gly | Asp 215 | Ile | Ile | Asp | Phe | Asp 220 | Thr | Gln | Gln | Val |
| Val 225 | Gly | Arg | His | Glu | Gly 230 | Ala | His | Tyr | Tyr | Thr 235 | Ile | Gly | Gln | Arg | Arg 240 |
| Gly | Leu | Asn | Ile | Gly 245 | Gly | Met | Glu | Lys | Pro 250 | Cys | Tyr | Val | Leu | Ser 255 | Lys |
| Asn | Met | Glu | Lys 260 | Asn | Ile | Val | Tyr | Ile 265 | Val | Arg | Gly | Glu | Asp 270 | His | Pro |
| Leu | Leu | Tyr 275 | Arg | Gln | Glu | Leu | Leu 280 | Ala | Lys | Glu | Leu | Asn 285 | Trp | Phe | Val |
| Pro | Leu 290 | Gln | Glu | Pro | Met | Ile 295 | Cys | Ser | Ala | Lys | Val 300 | Arg | Tyr | Arg | Ser |
| Pro 305 | Asp | Glu | Lys | Cys | Ser 310 | Val | Tyr | Pro | Leu | Glu 315 | Asp | Gly | Thr | Val | Lys 320 |
| Val | Ile | Phe | Asp | Val | Pro | Val | Lys | Ala | Val | Thr | Pro | Gly | Gln | Thr | Val |

325

330

335

Ala Phe Tyr Gln Gly Asp Ile Cys Leu Gly Gly Gly Val Ile Glu Val
340 345 350

Pro Met Ile His Gln Leu
355

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